

***TWENTY YEAR
TRANSPORTATION PLAN***

2000 - 2020

KEEPING MAINE MOVING

JANUARY 2001



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Introduction

This is a technical revision based to Maine's *20 Year Transportation Plan*. This revision is necessary to address modified requirements of the 1990 Clean Air Act Amendment. The previous version of this plan was developed with public participation and written during 1998. A draft version was released, reviewed and commented upon by Maine citizens later in the year.

That document was prepared under two mandates: a federal regulation contained in the *Transportation Equity Act of the Twenty-first Century (TEA-21)*, which is the applicable federal legislation, and a state rule adopted pursuant to the *Sensible Transportation Policy Act of 1991*. This plan has four chapters. In the first, entitled *Shaping the Future*, the forces at work to shape transportation plans are reviewed. Some of the topics include:

- the federal and state statutory and regulatory environment
- state plans and goals
- the Maine transportation planning process.
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Chapter 2, *Where Are We Now / Where Are We Going*, describes the current conditions of the transportation infrastructure and outlines some of the factors likely to affect future performance. Chapter 3 is entitled *Getting There*, and describes the steps to be taken to meet the goals discussed in Chapter 1 and addresses the needs presented in Chapter 2. The final chapter, *Funding*, reviews this important consideration and poses some questions concerning the transportation revenue stream and how it might be enhanced.

1.0 SHAPING THE FUTURE

1.1 The Changing Paradigm

In 1990, a milestone in the evolution of Maine’s transportation policy was realized by the preparation of the State’s first long range transportation plan: *Transportation to the Year 2000*. This plan, which gave comprehensive consideration to all modes of transportation, provided the basis for a process of forging a truly intermodal transportation system for the state. It was recognized then that long range capital planning for transportation is a continuous effort and that the plan should be viewed as a snapshot in time reflecting current knowledge and understanding rather than as a final statement. As new plans are prepared, new insights are gained that raise new issues requiring further exploration and public debate.

Soon after the development of that initial plan, several changes in state and federal transportation planning and policy took place. Two of the most significant events contributing to this change occurred in 1991. At the federal level, landmark legislation known as the Intermodal Surface Transportation Efficiency Act of 1991 (*ISTEA*), established a new vision for surface transportation in America and significantly changed the direction of national and state transportation policy. In June 1998

The adoption of federal *ISTEA* and *TEA 21* legislation and Maine’s *STPA* significantly changed transportation planning in Maine.

Congressional action on the reauthorization of *ISTEA* resulted in new national federal transportation legislation: the Transportation Equity Act for the 21st Century (*TEA 21*). At the state level, through a 1991 voter referendum, Maine’s Sensible Transportation Policy Act (*STPA*) was enacted. *STPA*, and the Rule which was developed to implement it, created a planning process that has significant public involvement and gives proper consideration to the diverse transportation needs of the people of the state, transportation efficiency, energy conservation, and the effects of transportation on the environment. In 1995, the MDOT updated its long range transportation plan to be consistent with the goals and requirements of these important new transportation policies. This document was called the *Statewide 20 Year Transportation Plan* and will be hereafter referred to as the *2000 20 Year Plan*.

Most recently, the MDOT has adopted its first *Strategic Plan* which redefines the Department’s mission and sets out three broad goals it will follow to achieve that mission. The goals of these federal and state policies are shown along with MDOT’s *Strategic Plan* goals in a table called ‘Transportation Goals for Maine’. The goals in that table are the basis for this plan.

1.1.1 MDOT's Strategic Plan

The Department's *Strategic Plan* was developed in collaboration with the Governor's Office and in consultation with the Legislature. It clearly defines the many challenges the MDOT faces as it moves into the next century. Some of the *Strategic Plan* is concerned with basic, internal topics such as improving safety for Department employees, and streamlining the administrative and operational functioning of the organization. Other parts of the *Strategic Plan* are focused on the public role of the MDOT.

An excerpt of that plan is presented below because it establishes a framework and basis for the decisions that have led to the development of the transportation policy recommendations contained in this plan:

“The ability of the Department of Transportation to carry out its mission is impacted by a variety of trends, conditions, problems and opportunities. Simply stated, our most dramatic challenge is that our infrastructure is aging. Roads, bridges, rail lines and other facilities that were built decades ago are now reaching, or have surpassed, their life expectancies. In many cases this translates into the reality that repairs and rehabilitation are no longer appropriate; the time has come for many replacement and reconstruction projects. This is especially true for a significant number of major bridges around the state, some of which offer the only practical and cost effective method for crossing rivers and other bodies of water. But this problem is not confined only to our bridges. Maine’s highway system is also deteriorating faster than it can be maintained.”

Even with the passage in 1998 of the *Transportation Equity Act for the 21st Century* (TEA-21) at the federal level, and increased support from the General Fund in recent Maine Legislature sessions, needs continue to exceed available funds. The *Strategic Plan* continues:

“The MDOT continually strives for that balance between public needs of the transportation system and the ability to make the system meet those needs. Citizens want opportunities for increased participation in the development of transportation improvements, and acceptance of recent transportation bond issue referenda clearly indicate public support for such improvements.

The business community seeks shortened travel times and reductions in travel expense to reduce the cost of doing business in Maine. Maintenance and improvements to the infrastructure are essential in meeting that interest. However, to truly respond to current economic demands, we must go beyond selective improvements to existing transportation facilities and aggressively pursue intermodal transportation connections for freight and passenger movements. Providing shippers and passengers the capability to move quickly and easily from one mode to another will result in efficiencies in both time and cost. Greater effectiveness in the use of existing transportation facilities must be coupled with increased efficiencies in intermodal connections.

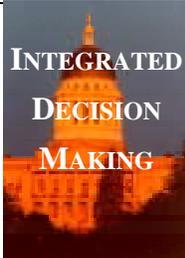
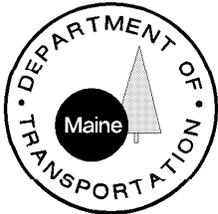
To meet these challenges and provide opportunities for an improved transportation system, Maine must aggressively pursue new technologies and new techniques for increased transportation efficiency. Innovative contracting and construction approaches can minimize the cost of infrastructure improvements and simultaneously reduce disruption to the public from improvement projects. Additionally, even with a significant reduction in its work force, MDOT must place increased emphasis on productivity and customer

service. This is a continuous internal challenge that must be coordinated with other governmental entities, both within and out of state. Examples of opportunities include additional tourism and travel partnerships to assure that transportation efforts support tourism; increased interaction with environmental support and regulatory groups to ensure appropriate balance between the needs to protect and preserve our environment and to improve transportation systems statewide; continued partnerships with commercial shippers and freight transporters to explore and develop more effective ways to move Maine cargo; and similar partnerships with passenger travelers to identify opportunities to improve passenger transportation.”

1.1.2 Maine’s Transportation Goals

The Department’s *Strategic Plan* and this *20 Year Plan* are action-oriented. They were developed by MDOT with input and guidance from the State’s Regional Transportation Advisory Committees (RTACs), the Governor, and other elected officials. These plans establish goals, objectives, and strategies that will guide the MDOT in the planning, development, and preservation of Maine’s multimodal transportation system over the next twenty-year period.

During 1997 the RTACs each reviewed the regional goals they had developed for the 1995 version of the *20 Year Plan*, and have revised these based upon progress made by MDOT and the RTACs in achieving them and a substantive reevaluation of regional priorities. The updated goals of each of the RTACs will be referenced throughout this plan as they apply to the Department’s strategies and objectives. The goals of the MDOT in forming transportation policy are summarized in the table that follows:

MAINE’S TRANSPORTATION GOALS 2000 - 2020		
ECONOMIC VITALITY 	GLOBAL COMPETITIVENESS	<ul style="list-style-type: none"> • Support economic vitality, especially by enabling global competitiveness, productivity & efficiency
	IMPROVED ACCESS & MOBILITY	<ul style="list-style-type: none"> • Increase access & mobility options for people & freight • Enhance integration & connectivity of the transportation system, across & between modes throughout the state, for people & freight.
	ENVIRONMENTAL PROTECTION	<ul style="list-style-type: none"> • Protect & enhance the environment, promote energy conservation, & improve quality of life.
INTEGRATED DECISION MAKING 	PUBLIC INVOLVEMENT	<ul style="list-style-type: none"> • Ensure local official involvement, especially from non metropolitan areas; • Improve coordination, cooperation & public involvement.
	INTERGOVERNMENTAL COORDINATION	<ul style="list-style-type: none"> • Integrate environmental & transportation planning decision making processes at all levels of government.
 SYSTEM MANAGEMENT	SYSTEM PRESERVATION	<ul style="list-style-type: none"> • Emphasize the preservation of the existing transportation system.
	IMPROVED SYSTEM EFFICIENCY	<ul style="list-style-type: none"> • Promote efficient system management & operation; • Address highway system capacity deficiencies •
	INCREASED SAFETY	<ul style="list-style-type: none"> • Increase transportation system safety & security for motorized & non motorized users. •

1.2 Mandates

This transportation plan has been developed in accordance with state and federal requirements.

1.2.1 ISTEA & TEA-21 - Statewide Planning Requirements

ISTEA requires each state to carry out a continuing, comprehensive, and intermodal statewide transportation planning process, which includes the development of a statewide transportation plan. The plan, which must cover a period of at least 20 years, is to consider a variety of factors ranging from highway and transit needs, to land use and environmental issues. It must be developed in coordination with agencies and organizations having responsibilities for all modes of transportation and include a range of transportation options designed to meet the transportation needs of both people and goods. Early and continuing public involvement throughout the planning process is required. The 1998 - 2004 federal transportation legislation, known as the *Transportation Equity Act for the 21st Century (TEA-21)*, has similar requirements to *ISTEA* for public involvement and expands requirements for municipal participation in transportation planning.

1.2.2 Sensible Transportation Policy Act (STPA)

The Rule implementing *STPA* also requires the establishment of a comprehensive, cooperative and continuous statewide transportation planning process that considers all modes of transportation.

1.2.3 Other Requirements

Three counties in southern Maine are designated by the US Environmental Protection Agency (EPA) as being in violation of federal air quality standards for ground-level ozone; two others have been classified as a “maintenance area”. This plan addresses the issue of transportation conformity under the *Clean Air Act Amendments (CAAA)* of 1990. Other legal mandates, such as those imposed by the *Americans with Disabilities Act (ADA)*, the *Clean Water Act*, the *National Environmental Policy Act*, the *Energy Policy Act*, and *Maine’s Comprehensive Planning and Land Use Regulation Act* are also addressed in this plan.

1.3 Evolution of the Planning Process

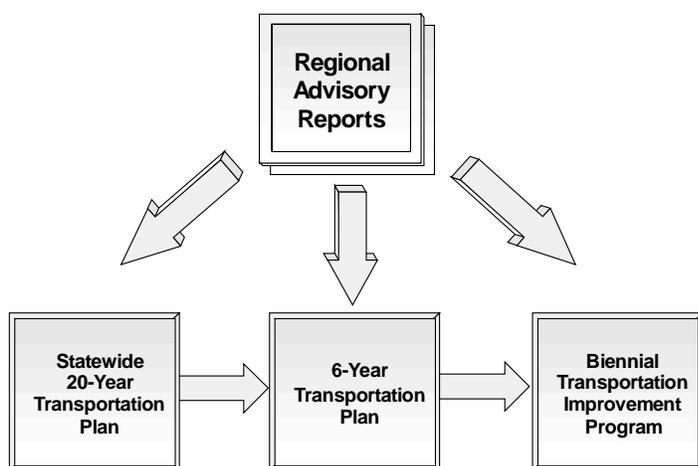
Before the enactment of *ISTEA*, state departments of transportation used measurable criteria and professional technicians, generally without public participation, to evaluate statewide transportation systems and propose projects to meet the transportation needs of the public. Many times projects would be presented to persons directly affected by the projects shortly before they were slated for design or construction. More often than not, that approach caused a great deal of consternation among citizens in the direct paths of projects. Since the implementation of *ISTEA* and *STPA*, however, MDOT is now looking at transportation issues in a different way. It became apparent that public input prior to the development of projects would be much more beneficial and effective than receiving it after the project parameters had already been decided. Now, combining technical expertise with public participation during planning processes is stressed as the better way to carefully evaluate, develop, and maintain transportation systems. As a result, the public is now offered a more significant role in transportation planning.

1.3.1 Regional Transportation Advisory Committee Reports identify regional issues

The process for developing regional and statewide transportation plans includes a primary role for public participation. Citizen volunteers are appointed to Regional Transportation Advisory Committees (RTACs) by the Maine Commissioner of Transportation to provide input

Regional Transportation Advisory Committees (RTACs) ensure a diverse perspective is brought to bear on transportation planning decisions. RTAC membership is drawn from well defined interest groups and uses a consensus-based decision-making model. RTACs have developed Regional Advisory Reports which are considered a driving force in the formulation of MDOT plans and policies.

from seven regions statewide and advise the MDOT on transportation issues during the planning process. By rule, RTACs are comprised of representatives from across the spectrum of transportation interests. During meetings open to the public, members decide which transportation issues should be priorities within their regions.



The RTACs develop written *Regional Advisory Reports* with goals, objectives, and strategies to address their regions’ transportation issues. These reports identify regional transportation needs and deficiencies; transportation improvement priorities; multimodal system options; social, environmental, and economic issues and goals; and land use issues and goals. The *Regional Advisory Reports* are used by MDOT to develop the *20 Year Plan*. Revision of the goals, objectives, and strategies of the regional reports coincides with the periodic

updates of this plan. All RTAC meetings are open to the public, and public input is encouraged. Public hearings are held for both the *Regional Advisory Report* and the *20 Year Plan* to elicit additional public participation and comment during the planning process.

1.3.2 The 20 Year Plan establishes statewide policies, goals, objectives & strategies

This plan, which is reflective of the goals, objectives, and strategies of the MDOT and those presented in the RTAC’s advisory reports, has been coordinated with, and incorporates by reference, plans of the State’s four Metropolitan Planning Organizations (MPOs) and the ten-year plan developed by the Maine Turnpike Authority (MTA).

Many transportation options were evaluated when developing the *20 Year Plan*. The improvement options and alternatives must adequately address the identified transportation needs, improve safety, be cost-effective, and promote the *20 Year Plan*'s established objectives. At a minimum, the options and systems evaluated by the MDOT included the following:

- ◆ the current highway and bridge system;
- ◆ public transit (i. e., bus, train, ferry) service;
- ◆ intercity and local passenger rail service;
- ◆ bicycle lanes, paths, and facilities;
- ◆ sidewalks and pedestrian facilities;
- ◆ seaports and airports including access to these facilities;
- ◆ transportation system management techniques;
- ◆ freight rail service;
- ◆ transportation demand management techniques such as high-occupancy vehicle lanes, ridesharing programs, and other methods to increase vehicle occupancy levels; and
- ◆ current and emerging technological innovations relative to transportation that will further the objectives of the plan.

To meet the requirements for public participation during the planning process, the draft *20 Year Plan* is made available for public comment and public hearings. All projects contained in future Transportation Improvement Programs must be consistent with the *20 Year Plan*.

In addition, the *20 Year Plan* incorporates numerous planning efforts undertaken by MDOT to address a variety of mobility issues. These include the *Strategic Passenger Transportation Plan*, the *Bicycle and Pedestrian Plans*, and the *Integrated Freight Plan*.

1.3.3 The 6 Year Plan sets out policies and projects for the next six years

The *6 Year Plan* is a recently developed planning document which is intended to provide a linkage between the *20 Year Plan* and the *Biennial Transportation Improvement Program (BTIP)*. It is drawn from the RTAC and MDOT planning processes and is consistent with the goals, objectives, and strategies of the *20 Year Plan*. The *6 Year Plan* will provide a view of project priorities beyond the traditional two-year period. The expanded vision provided by a six-year planning document provides the MDOT with the opportunity for more effective management of its financial and project development resources. As importantly, it will allow communities to plan for their own multi-year capital improvement projects and heighten their awareness of how their transportation needs may be addressed in the near future.

1.3.4 The Biennial Transportation Improvement Program (BTIP) identifies projects for the biennium

The *BTIP* is the State's two-year programming document. When it is presented to the state legislature, it reflects MDOT's budget funding request. The *BTIP* includes the statewide transportation projects drawn from the *6 Year Plan* and supports the goals, objectives, and strategies of the *20 Year Plan*.

Subsequent to the development and presentation of the *BTIP*, the MDOT presents to officials at the Federal Highway and Federal Transit Administrations the *Statewide Transportation Improvement Program (STIP)*, which contains an implementation schedule of the

projects contained in the current *BTIP* as well as those not completed from prior programs. During the development of this programming document factors such as anticipated federal revenues, project development resources, and the effects of program implementation on the State’s air quality are considered.

1.4 Stakeholders in the Process

Public involvement helps shape Maine’s transportation policy.

Maine has an ongoing commitment to public involvement in its planning process. A transportation plan is successful when it reflects the needs and concerns of the public. To help understand these needs, MDOT involves a broad range of stakeholders in its transportation decision-making processes.

1.4.1 Regional Transportation Advisory Committees

The *STPA* Rule creates a new structure for regional transportation planning. Effective planning at the regional level, along with early public participation, serves as the fundamental basis for development of transportation plans and programs. Evaluation and consideration of local and regional transportation deficiencies and needs; social, economic, land use and environmental concerns; and intermodal, multimodal transportation solutions, provides a basis for early and effective integrated planning. The Regional Transportation Advisory Committee (RTAC) is central to implementation of the *STPA* Rule.

Regional Transportation Advisory Committees are composed of representatives of the following transportation interest groups: municipal officials and professional planners; persons interested in environmental and land use issues; representatives of commerce and the business community; advocates of various alternative transportation modes; and citizens representing the general public.

1.4.2 Regional Planning Councils (RPCs)

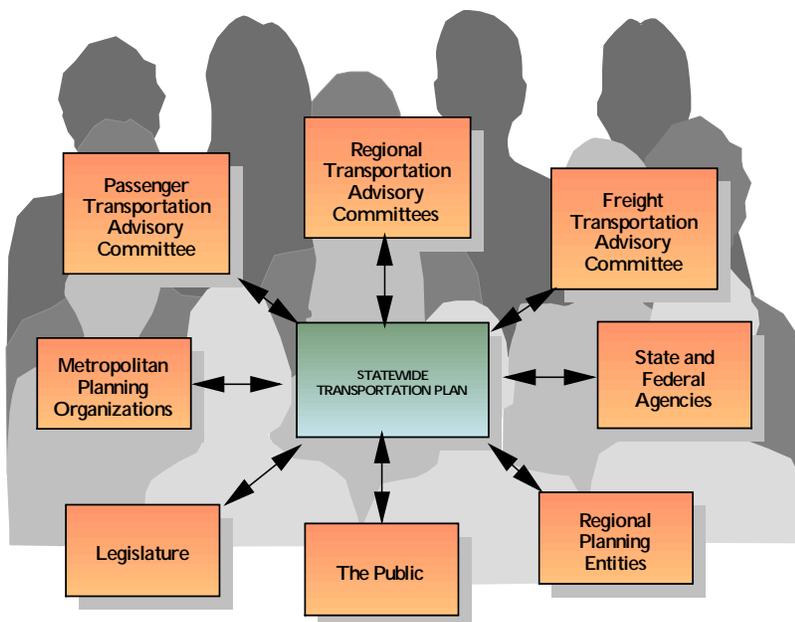
MDOT also coordinates its planning efforts with Regional Planning Commissions and Councils of Government and relies on them as resources to the RTACs and the MDOT. The close links these agencies have with municipal government and their expertise in planning and land use issues are a valuable asset in transportation planning. MDOT contracts with the RPCs for planning services jointly with the Maine State Planning Office, Department of Environmental Protection, and Department of Economic and Community Development.

1.4.3 The Passenger Transportation Advisory Committee

The Passenger Transportation Advisory Committee was formed to provide guidance to the Office of Passenger Transportation (OPT) in the development and implementation of the *Explore Maine* and other initiatives, and is instrumental in ensuring that the *Strategic Passenger Transportation Plan* meets its goal of creating an integrated, multimodal transportation capacity that supports and promotes tourism. The Committee’s continued oversight of the Plan’s implementation will ensure the development of practical and realistic transportation opportunities.

1.4.4 The Freight Transportation Advisory Committee

The Freight Transportation Advisory Committee, made up of a modally diverse group of Maine shippers and manufacturers, serves as a forum and advisory body for the MDOT concerning the various issues involved with the movement of freight in our state. The Committee helps to keep the Department attuned to the special issues of this important segment of transportation system users. The Committee also played an important role in the Department’s development of an *Integrated Freight Plan* for the State of Maine, helping to assure that goals and objectives are realistic.



1.4.5 Metropolitan Planning Organizations

Metropolitan Planning Organizations (MPOs) are federally designated planning organizations responsible for carrying out a continuous, comprehensive and cooperative transportation planning process for urbanized areas with populations of 50,000 or more. Similar organizations exist in urban areas nationwide. There are four MPOs in Maine:

- Bangor Area Comprehensive Transportation Study (BACTS)
- Kittery Area Comprehensive Transportation Study (KACTS)
- Lewiston-Auburn Comprehensive Transportation Study (LACTS)
- Portland Area Comprehensive Transportation Study (PACTS).

The MPOs are comprised of a Policy Board of elected and appointed officials from the municipalities within the metropolitan area, the local planning commission or council of governments, chambers of commerce and/or business representatives, local public transit providers, the Maine Turnpike Authority (MTA), if appropriate, the Maine Department of Transportation, and the federal funding agencies of the US Department of Transportation. A Technical Advisory Committee made up of transportation planners, engineers, advocates, and service providers makes recommendations to the Policy Board on technical matters. MPOs are responsible for two main products: the *20 Year Multimodal Transportation Plan* for the metropolitan area, and the *Transportation Improvement Program (TIP)*.

The *20 Year Multimodal Transportation Plan* is a constantly evolving document which provides guidance to state and local decision-makers in the development of the region’s transportation system. The *TIP* is a capital improvement program, developed every two years in cooperation with MDOT. This program results in a prioritized list of transportation projects, in all modes, that are submitted for federal, state and local funding.

The MPOs develop planning work programs on an annual basis which identify planning studies requested by member communities. MPOs are also repositories of regional traffic data and information. Every year MPOs respond to requests for data from local developers, businesses, planners, and citizens.

1.4.6 Maine State Ferry Advisory Committee

This committee, consisting of representatives of the six islands and main land communities served by the Maine State Ferry Service (MSFS), advises the Service on rates, service, schedules, and other policy issues. The Committee completed the first strategic plan for the MSFS in 1996. This five year plan addresses issues identified by the users, crews, and management of the MSFS.

1.4.7 Maine Bicycle Council

The Maine Bicycle Council is a citizen advisory board offering support and guidance to the MDOT’s Bicycle and Pedestrian Coordinator in the implementation of the Bicycle and Pedestrian Plans.

1.4.8 Other Agencies

ISTEA and STPA require MDOT to coordinate its planning process with a wide range of state and federal agencies that may also be conducting transportation planning or that may be developing public policy impacting transportation. This coordination may include the following agencies:

<i>Federal</i>	<i>State</i>	<i>Other</i>
Federal Highway Administration	Maine Department of Environmental Protection	Indian Tribal Governments
Federal Railroad Administration	Maine Department of Inland Fisheries and Wildlife	Interstate Bridge Authority
Federal Transit Administration	Maine State Planning Office	Maine Publicity Bureau
Federal Aviation Administration	Maine Department of Economic and Community Development	Maine Turnpike Authority
U. S. Environmental Protection Agency	Maine Department of Conservation	Maine Port Authority
Department of Interior	Maine Historic Preservation Commission	Northern New England Passenger Rail Authority
Bureau of Indian Affairs	Maine Department of Marine Resources	
National Park Service	Maine Department of Agriculture	
Army Corps of Engineers		

1.4.10 The Maine Legislature

Legislators represent the consumers of the services provided by the Maine Department of Transportation and communicate public desires concerning such services. The Joint Standing Committee on Transportation has jurisdiction for all transportation policy matters and most transportation funding matters. Transportation fiscal issues (budget allocations, bond requests) supported by the Highway Fund are authorized by the Transportation Committee while General Fund requests are authorized by the Joint Standing Committee on Appropriations and Fiscal Affairs. General Fund transportation requests typically involve support for rail, ferries, transit, and aviation.

The Committee holds public hearings and work sessions on all transportation related bills sponsored by legislators, the Governor, or, through petition, the general public. The Committee reviews all Highway Fund budgets: MDOT, Secretary of State, and the Department of Public Safety. It also reviews the toll-supported budget of the Maine Turnpike Authority. The Transportation Committee reports to the full legislature on bills and budgets, which are then debated and resolved on the floors of each body of the Legislature.

While the Transportation and Appropriations Committees are the primary legislative committees governing transportation matters, other key committees include Taxation, which sets the level of fuel taxes, and Natural Resources which sets policy on environmental regulatory issues.

1.4.10 The Public at Large

The transportation community, all people who use transportation systems, are the customers of this planning process. Since the public is the customer, the public is invited and encouraged to participate in the transportation planning process early, often, regularly, and continuously. The responsibility to provide accurate and timely information to the public rests on the shoulders of transportation professionals. This plan was released in draft form seeking input on the contents. Following this input, and a review of written comments, the plan has been updated to take this input into account. See the Appendix for a summary of the comments received on the draft plan along with the actions MDOT took in response.

1.5 Organizational Changes

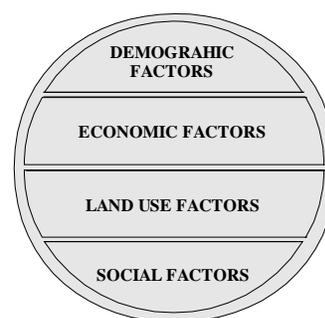
The Department's organizational structure has been changed to better serve customers. These changes were made to focus more on the user than on the mode of transportation used, funding category, or other consideration. Two new offices have been created: the Office of Passenger Transportation and the Office of Freight Transportation. The Bureau of Maintenance and Operations (M&O) now includes rail track inspectors and other staff involved in the maintenance of facilities in all modes of transportation. All community service activities have been consolidated in the Bureau of Planning, while all traffic-related activities are now located together in M&O. Maintenance Division Engineers regularly attend RTAC meetings and the dialog between them and the RTAC membership has been helpful to both. Other organizational changes continue to be made to ensure the integration of transportation policy across all modes and promote maximum efficiency in the delivery of MDOT's services. The current organization of the MDOT is displayed in the Organization Chart on the inside front cover of this plan.

2.0 Where Are We Now/Where Are We Going?

2.1 The Demand For Transportation

The demand for transportation is driven by a number of inter-related and complex factors. Key among these are growth in population, changes in family structure, changing travel habits, the nature and location of employment opportunities, and land use development patterns. Today we are faced with growing demand on an aging highway system: Vehicle Miles Traveled (VMT) have been projected to grow by 18% over the next 20 years. Smaller increases are expected in population and employment. This growth in demand comes during a period of limited fiscal resources and must be addressed in the context of often conflicting environmental and social concerns.

Factors Affecting Transportation Demand

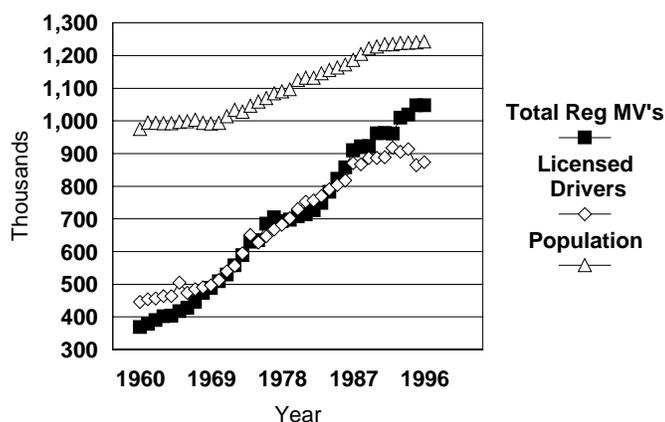


2.1.1 Demographics

2.1.1.1 Population Growth

According to US census figures and State Planning Office (SPO) data, between 1960 and 1996 Maine's population grew by nearly 28%. But the driving public has grown by a larger factor. In 1960, 46% of the total population was licensed to operate a motor vehicle. In 1970, this proportion had risen to 52%; in 1980, to 65%; and in 1996, to 70%. The number of licensed drivers is now nearly equal to the number of eligible citizens. In 1996, 89% of the population between the ages of 16 and 85 was licensed to drive. Over the last thirty years the number of licensed vehicle operators has increased by 100%. The number of registered motor vehicles now exceeds the number of licensed drivers. Since 1960 the number of registered vehicles has grown by over 180%. This saturation would seem to imply that the rate of growth in transportation demand on the highway and bridge systems should diminish. But this has not proven to be the case.

Drivers, Vehicles & Population
1960 to 1998

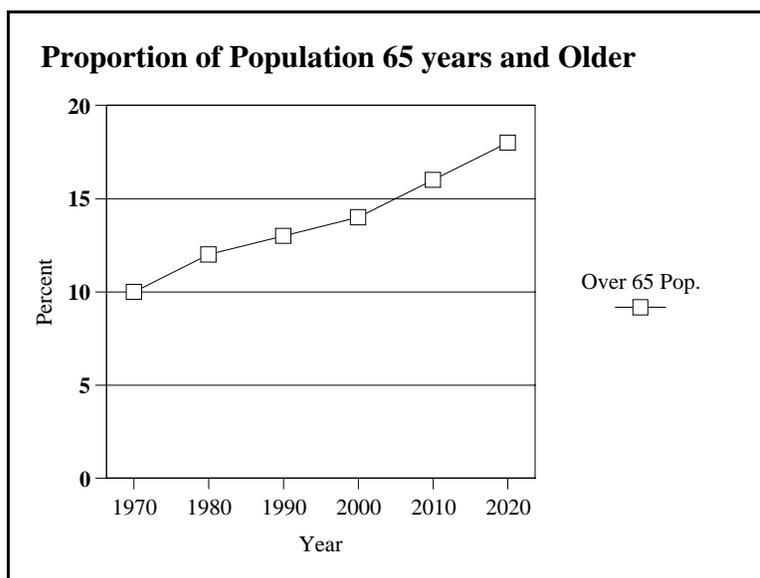


Another significant change in Maine’s population is the increasing number of citizens age 65 and over. The population 65 and over has been increasing steadily for many years. In 1970, the 114,000 people in this age group represented less than 12% of the total population. Currently, 14% of Maine people are age 65 or older. Future growth in this age group will be more dramatic. By the year 2020, a large proportion of “baby boomers” will have entered their 60s and 70s, a quarter of a million people in Maine will be 65 or older, and this age group will account for more than 18% of the total population. The aging of Maine’s population parallels a widespread national trend.

By the year 2020, Maine’s population is expected to increase by 6 percent. During the same period, if current trends continue, growth in Vehicle Miles Traveled (VMT) is projected at 18%.

The transportation significance of this trend is that Maine’s future transportation system must adapt to the needs of an increasingly elderly population. Highway designs and traffic control devices will need to be more sensitive to a sizable driving population with somewhat diminished physical capabilities. There will also be a much larger elderly population unable or less inclined to drive an automobile. More than ever before, Maine will need transportation services that are accessible to the elderly who have no other mobility choices.

Based on projections done by the Maine State Planning Office, over the next 20 years, Maine will see relatively modest increases in population and employment. During this period,



the year-round state population is expected to increase about 6%, while the total number of jobs will increase by 12%. Nationwide, population is expected to grow by 18% over the same period, with employment increases at a higher rate.

2.1.1.2 Household Size

As noted in the 1995 *20 Year Plan*, the number of households is increasing while numbers of persons residing in each household is decreasing. This fact becomes critical in

anticipating transportation needs because trip generation is based more on the number of people per household and their characteristics than population alone. Where the numbers show not only an increase in number of households but also an aging population within those households, the state must look at future needs as distinct from current needs.

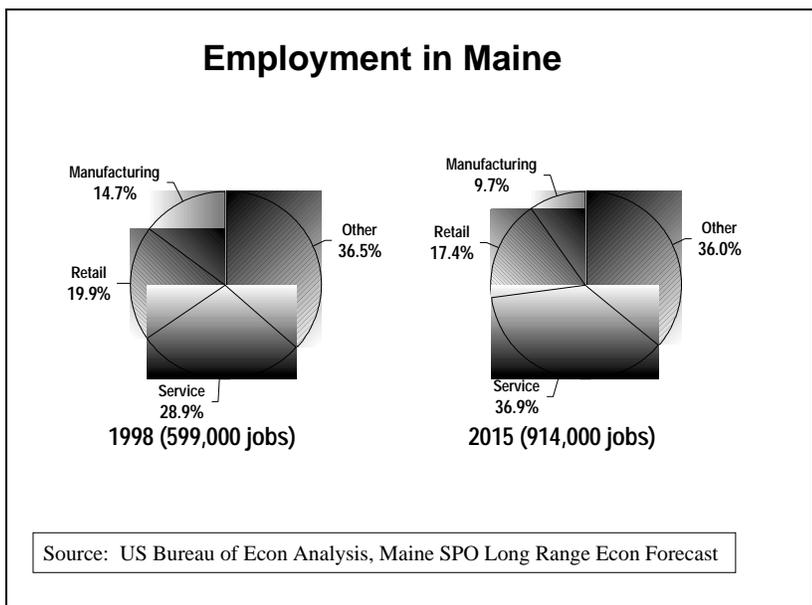
2.1.2 The Economy

The chart labeled **Employment in Maine** shows that the mix of jobs will change significantly over the next 20 years. The service sector of the economy, which includes financial service, the insurance industry, real estate, government, medical services, and many other types of services, will become a more dominant employer, while manufacturing employment decreases. From 1995 to 2015, the percentage of jobs in the manufacturing sector is projected to decline from 14% of all jobs to less than 10%, a net decrease of 25,000 manufacturing jobs. This loss of manufacturing jobs will be absorbed mostly by the large service sector, which will increase its share of all jobs from 48% to 55%: a net increase of more than 90,000 service jobs.

Demographic and economic changes are acting together to increase travel and reliance on the transportation system.

Some service sector jobs tend to be lower paying than manufacturing jobs and many are only part time. This results in declining incomes, more members of households working, and workers holding multiple jobs. Transportation costs not only increase, they become a larger percentage of household expenditures.

These changes in population and employment have implications for transportation in Maine. With the number of jobs increasing at a faster rate than the population, the number of households with more than one wage earner is likely to increase. These two-income households are likely to generate more travel than single-income households. The shift in employment from manufacturing to service industries may also increase travel since the service sector tends to generate more traffic per employee than does the manufacturing sector. However, some industries in the service sector, through the benefits of improved communications networks, may be fertile ground for increased telecommuting and home-based businesses.



2.1.3 Maine's Land Use Patterns

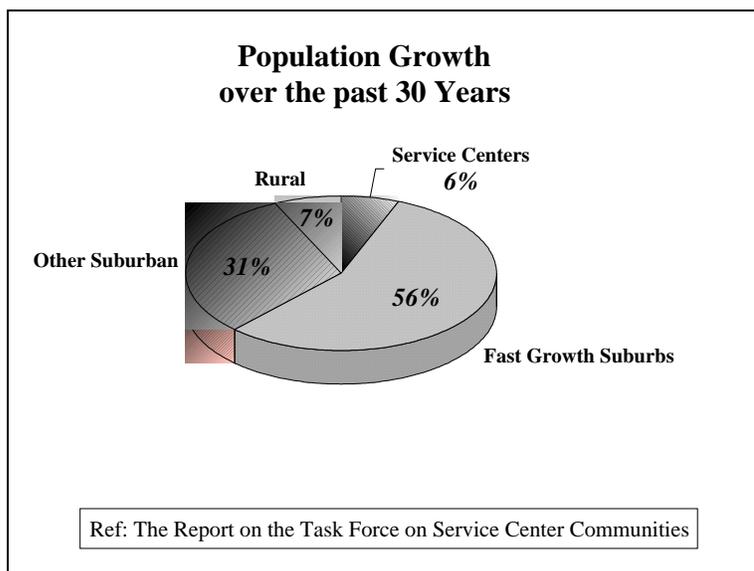
There has been a great deal of research and study into the direct relationship between land use and transportation. A consistent finding is that inter-municipal competition for commercial development results in a local reluctance to regulate highway access in any comprehensive way. The responsibility of the MDOT is to see that highway capacity is maintained and that the transportation system will be respectful of community values while meeting the needs of the traveling public. Toward this end, access management (the control of the number and type of entrances to a given highway) legislation has recently been introduced by the state legislature.

Land use patterns and the transportation system are tightly coupled, while governmental authority to control each resides with a different level of government.

Zoning, which was once viewed as the only way to deal with conflicting land uses, has evolved into a myriad of tools which now support neotraditional mixed-use development. Traditional Maine villages which incorporate a mix of residential, industry, educational, and consumer opportunities are now seen as not only more socially desirable but also more environmentally sensitive. Promoting mixed use development patterns supports a reduction in VMT by providing more convenient choices for residents to get to work or go shopping.

Maine’s State Planning Office has identified regional service center communities. The criterion for selecting a municipality for inclusion is the extent to which the community serves as a job, trade, or service center. After statistical indices reflecting data in these categories were analyzed, a geographic distribution of these attributes was done. See the **Table of Regional Service Center Communities** in the Appendix for a listing of the service centers. Additional considerations having implications for state transportation decisions can be found in a study by the Maine State Planning Office (SPO) called *The Cost of Sprawl*. The study explores the fiscal impacts on public services by the ‘spreading out’ trend Maine has been experiencing for the past thirty years.

Residential patterns have changed considerably over the past 30 years, which has significantly impacted travel patterns with respect to the service centers. See chart **Population Growth over the past 30 Years**. Considering just population:



- Maine’s largest ‘service center’ communities have grown only slightly;
- The fastest growing communities, the ‘Fast Growth Suburbs located 10 to 25 miles from service centers, have grown at the highest rate;
- The remaining remote rural municipalities have grown modestly (SPO, 1997).

Industry and jobs have begun to follow this out-migration trend, but most job growth recently has taken place within the service

centers, and a large percentage of Maine's population travels every day from the suburbs into the service center employment zones. This trend negatively impacts the state’s ability to provide effective public transportation to greater numbers of people. The outlying towns do not have the population density base to support a public transit system.

Yet, as the population ages, the need for public transit services will surely increase. This trend also makes walking and riding bicycles to work challenging at best, and since the net result is an increase in the use of highways and bridges because the bulk of the increased travel is with the private automobile, it makes traffic congestion in all large employment zones very likely.

The pattern of suburban commuting found around many large cities, is changing from a suburb/service center commute to a suburb/suburb commute. This trend, too, will only increase congestion. Maine Department of Transportation and other state agencies are reviewing funding policies in an effort to affect these trends.

2.1.4 Environment

Under various federal and state environmental initiatives, such as the National Environmental Policy Act (NEPA), the National Historic Preservation Act, the Clean Water Act, and Maine's Site Location and Natural Resources Protection laws, the MDOT is working toward increased integration of transportation and environmental planning. Such an integration makes good decision-making sense and results in:

- sound statements of projects' purpose and need
- thorough alternatives analysis
- early consideration of environmental factors in the planning process
- appropriate environmental impact avoidance, minimization, and mitigation
- prudent investment of scarce resources.

A thread of concern about environmental degradation runs through all of the RTAC Regional Advisory Reports, and all RTACs show support for MDOT's efforts to bring the state into compliance with environmental law in their regional goals.

NEPA, triggered by federal funding participation in a project, sets broad national policy in relation to the environment. NEPA influences decision-making concerning a project's conception, location, design, construction and maintenance, and requires the use of an interdisciplinary approach when impacts are anticipated to:

- biological resources such as fisheries
- economic resources such as residential areas
- physical resources such as bodies of water and the water table
- social or community resources.

2.1.4.1 Air Quality

The Clean Air Act of 1990 established National Ambient Air Quality Standards (NAAQS) by which each state could measure the amount of pollutants that were found in their air. The State of Maine has been shown to have air quality problems and some of those problems can be attributed to transportation sources. In general, transportation affects two pollutants, ground level ozone and particulate matter smaller than 10 Microns (PM₁₀). Ground level ozone is formed when volatile organic compounds (VOC) and oxides of nitrogen (NO_x) react in the presence of sunlight and heat and is most directly associated with the hot summer months. VOC and NO_x are ozone precursors that are emitted from a variety of sources in the transportation sector. Basically vehicles that burn fuel will emit these ozone precursors.

Maine has had exceedences of the level of primary NAAQS established by the Clean Air Act Amendments (CAAA). Most of the high ozone occurrences have been during very hot days and almost all have been along the coast. The Environmental Protection Agency (EPA) is

required to set these standards at a level that is determined by the latest scientific knowledge to protect public health. The areas of the state that exceed these standards are designated as nonattainment areas.

Maine’s only area with a PM₁₀ problem is located in Presque Isle. In the case of this area, transportation related emissions have not been identified as a significant contributor to the PM₁₀ problem. Since February 25, 1991, there has only been one monitored violation of the PM₁₀ standard. Maine’s PM₁₀ attainment plan has been accepted by EPA.

Currently, Maine does not have any areas designated as nonattainment for PM_{2.5} and any future designation has been placed on hold until EPA has finished with several court challenges. With a new standard, there will be a monitoring network established for PM_{2.5}. Until any areas are identified, Maine need only comply with the current PM₁₀ standard.

Maine’s ozone nonattainment area once encompassed twelve counties in the southern coastal part of the state. The state has subdivided its ozone nonattainment area into five smaller air quality planning areas for planning and conformity purposes. On March 27, 1997, EPA redesignated Maine’s nonclassified nonattainment area, air quality planning area #5, that included the southern part of Franklin, Oxford and Somerset counties. Area #5 is no longer designated on the accompanying map. On April 29, 1997, EPA approved the state’s redesignation of air quality planning area #4 to attainment. This area, which includes Waldo and Hancock counties, will remain a maintenance area until 2016. On June 5, 1998 and again on June 9, 1999, EPA revoked the 1-Hour Ozone Standard for areas with at least three years with no violations.

This action redesignated air quality planning areas #1, #2 and #3 from nonattainment and relieved the state of previous Transportation Conformity requirements. Following these actions, Maine was left with one area in maintenance, air quality planning area #4 (Waldo and

Air Quality Planning Areas
 Areas 1, 2 & 3 - Nonattainment
 Area 4 - Maintenance



Hancock Counties). On July 5, 2000, the EPA issued a final rule notice to reinstate the 1-Hour Ozone Standard and the pre-existing designations in areas #1 (York Cumberland and Sagadahoc Counties), #2 (Androscoggin and Kennebec Counties), and #3 (Lincoln and Knox Counties) effective on January 16, 2001.

The CAAA not only sets standards for ozone but also establishes requirements for reductions in VOC and NO_x emissions. Since the CAAA establishes requirements for ozone, and also requires reductions in these ozone precursors (VOCs & NO_x), the CAAA may restrict activities in transportation as well. Most of the State's efforts in the mobile source sector to bring the Air Quality Planning Areas into compliance have focused on establishing emissions budgets and reducing the levels of ozone precursors through technological advances in emissions controls and providing alternative transportation choices.

MDOT has made an effort to implement measures to encourage the general population to change its driving habits from the single occupant vehicle to other modes of travel. The state, local communities and organizations have taken advantage of Congestion Mitigation and Air Quality funds to increase the use of public transit, develop rideshare programs, build park and ride lots, build and connect bike and pedestrian facilities as well as improve traffic signal systems to keep traffic flowing.

States in the Northeast Ozone Transport Region (including Maine) are required by EPA to adopt a low emission vehicle (LEV) program for cars and light duty trucks, similar to that in California. These LEV reductions began in 1999, and it is expected that by the year 2015 the program should reduce NO_x emissions by 39% and VOC emissions by 38%. This will reduce the amount of emissions generated inside of Maine, as well as those emissions transported into Maine from other states.

The EPA has also adopted a standard for diesel heavy-duty engines (HDEs) intended for highway operation. This standard is expected to reduce approximately 50% of the NO_x emissions produced by diesel trucks and buses manufactured beginning in 2004.

If these strategies do not provide enough ozone reductions so that the state can meet the national ambient air quality standards, the Legislature may be forced to enact stronger measures to clean the air. In Chapter 3 additional transportation measures are outlined to allow visitors to tour the state by modes other than the automobile and to provide services to the people of Maine that give them more choices moving from home to work.

2.1.4.3 Transportation Conformity

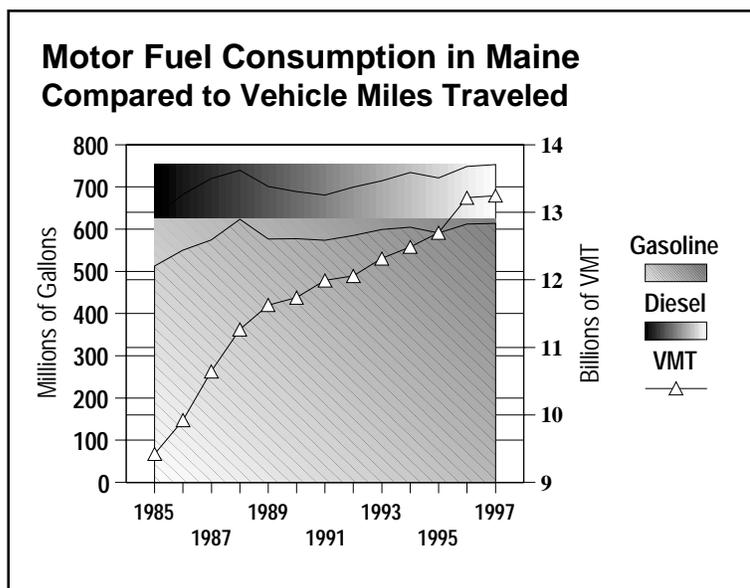
The 1990 Clean Air Act Amendments require Metropolitan Planning Organization (MPO) Area Plans conform with Maine's *State Implementation Plan* (SIP) for Air Quality. Because the MPOs in Maine do not encompass all of the nonattainment areas, the state is responsible for those areas in nonattainment outside of the MPOs. As this plan incorporates the MPO plans by reference, the state is required to provide a conformity determination. The heart of this requirement is the analysis of projects that affect Maine's designated ozone nonattainment or maintenance areas and are likely to either increase or decrease transportation emissions. Various tools are used for this analysis. The most recent tool, particularly for projects that increase highway capacity, is travel demand modeling. MDOT has developed a statewide travel demand model that is used to estimate the impact of these types of projects. The conformity analysis document will be developed in conjunction with the MPO's *20 Year Plan* approval process.

Analysis results, when completed for projects in all referenced long range plans, are then aggregated by Air Quality Planning Area (AQPA). These AQPAs are identified on the map labeled **Air Quality Planning Areas** on the previous page. Each area then must pass various conformity tests, such as the build-no-build or emissions budget tests. Each new transportation plan must demonstrate it meets the required conformity test before the transportation plan is approved by the MDOT or accepted by the US DOT.

2.1.4.3 Energy

Highway transportation consumes almost four-fifths of all transportation energy. Despite advances in alternative fuel vehicles and the blending of cleaner burning fuels, transportation continues to be nearly totally dependent on oil for energy.

The chart entitled **Motor Fuel Consumption in Maine Compared to Vehicle Miles Traveled** shows the consumption of motor fuel in Maine from 1985 to 1997. During this 12 year period, fuel consumption increased from 682 to 752 million gallons per year, an increase of 9.7 percent. During the same period, however, vehicle miles traveled (VMT) increased by 40 percent, as shown on the chart by the VMT line.



This discrepancy is the result of a significant increase in the fuel efficiency of vehicles traveling on Maine’s highways. Because of the increasing horsepower and weight of passenger cars and other light-duty vehicles being introduced into the fleet today, the steadily improving motor vehicle energy efficiency experienced over the past may be reaching an end in the short term. However, the volatility of the petroleum markets and the possibilities of supply disruption, as the world dependence on oil is expected to continue to grow, along with improvements in motor vehicle technology and continued air quality concerns are expected to perpetuate this trend toward increased fuel efficiency over the long term. Within the 20 year period envisioned in this plan other technological innovations may occur, such as new battery technology or hydrogen fuels, with the potential to disrupt the transportation infrastructure revenue stream.

2.2 Maine’s Transportation System

The MDOT has made a long-term commitment to address the state’s transportation needs and issues from an intermodal perspective. Intermodalism recognizes the relationships among the different modes of travel and the linkages that allow the transportation system to function as a unit rather than as independent parts. The following sections describe the components that make up this system and quantifies their extent, use, condition, and performance, as well as identifies specific needs and issues.

A strong commitment to intermodalism is central to MDOT’s transportation planning.

2.2.1 Highways

2.2.1.1 Extent and Use

The largest and most important component of Maine’s transportation system is its highway network. The overwhelming majority of people and goods in Maine are moved over the State’s 22,612 miles of highways, and the highway system consumes the vast majority of transportation expenditures. MDOT is responsible for approximately 8303 miles, or 37% of the system. The Maine Turnpike Authority is responsible for the 111-mile Turnpike. In addition, 336 miles of state highways are located within state or federal reservations. The remaining 13,862 miles, or 61% of roads in Maine, are the responsibility of local government.

Sixty percent of the Vehicle Miles of Travel (VMT) take place on only 12% of the road mileage.

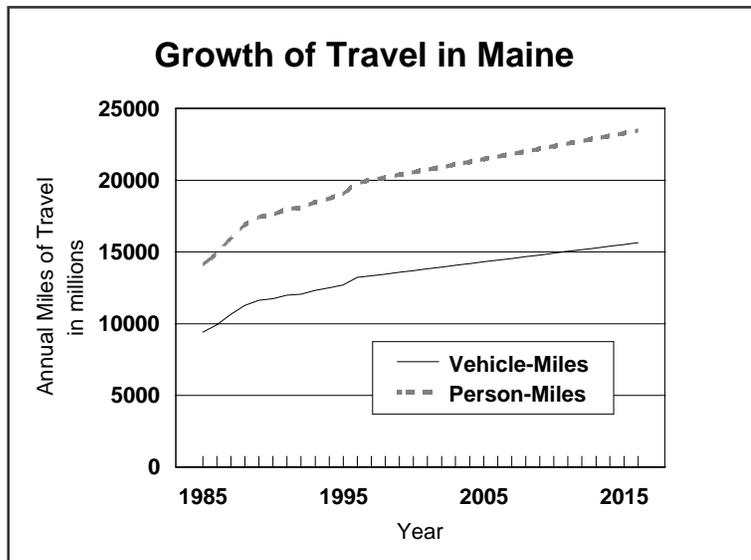
These highways have been classified according to the function they serve, ranging from freeways to local roads. The two primary factors considered in functionally classifying highways and streets are access to property and travel mobility. Freeways and arterials are high volume, high speed roadways that serve statewide and regional travel by providing linkage between major cities, towns, and developed areas. Collector roads are characterized by a roughly even distribution of their access and mobility functions. Their traffic volumes and speeds will typically be lower than those of arterials. Local roads primarily provide access to adjacent land and have a relatively minor role in accommodating mobility. Maine’s development patterns, however, have caused the distinction between arterials, collectors and local roads, where they meet in service or village centers, to blur. As a result, conflicts in road function are occurring.

Maine’s National Highway System (NHS) consists of 367 miles of Interstate highways (freeways) and an additional 903 miles of principal arterial roadways.

While the Interstate and arterial roads comprise only about 12% of the state system mileage, they serve over 60% of the total vehicle-miles of travel. Local roads, on the other hand, constitute 61% of total road mileage but carry only 11% of total vehicle-miles of travel.

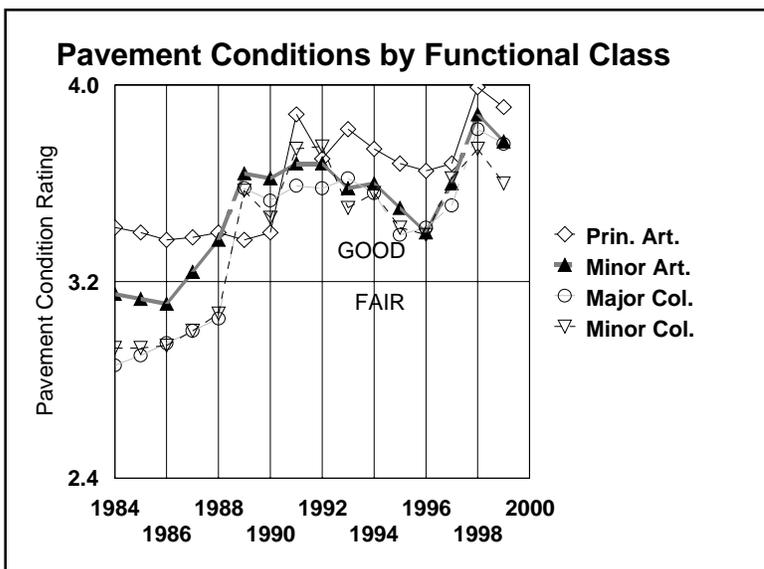
Currently, Maine’s transportation system is used by millions of people that generate nearly 20 billion person-miles of travel (PMT) per year. With an average of 1.5 persons per vehicle, this translates to about 13 billion vehicle-miles traveled (VMT) on the highway system. Over the next 20 years travel in Maine is expected to grow by 18%. As the chart labeled **Growth of Travel in Maine** indicates, annual PMT will exceed 23 billion. At the same rate of growth, annual VMT will approach 16 billion.

The 18% growth in travel, compared to the 6% growth in population and the 12% growth in employment suggests that Maine citizens will continue to travel increasingly longer distances. This is in part a reflection of the continuing dispersal of employment and population to suburban and rural areas, where distances between one destination and the next are typically greater. If the average number of occupants per vehicle does not increase, the consumption of Maine’s existing highway capacity will also increase by 18% in the next 20 years.

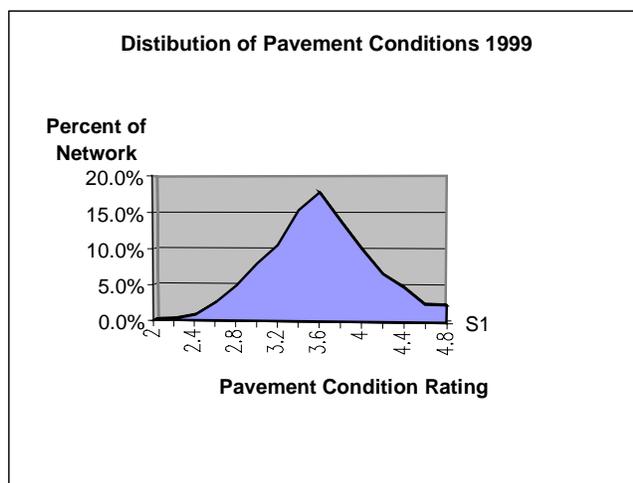


2.2.1.2 Pavement Condition

Average pavement conditions throughout the state have improved over the past ten years. See chart at right entitled **Pavement Conditions by Functional Class**. Pavement conditions reached a high point in 1991. Since then, pavement deterioration has exceeded efforts for preservation, but, on average, the pavement has not deteriorated below “good” condition. Pavements are considered to be in “good” condition until they deteriorate beyond the initial stages of cracking and rutting. The “fair” range includes highways with moderate distresses and the beginning of patching.



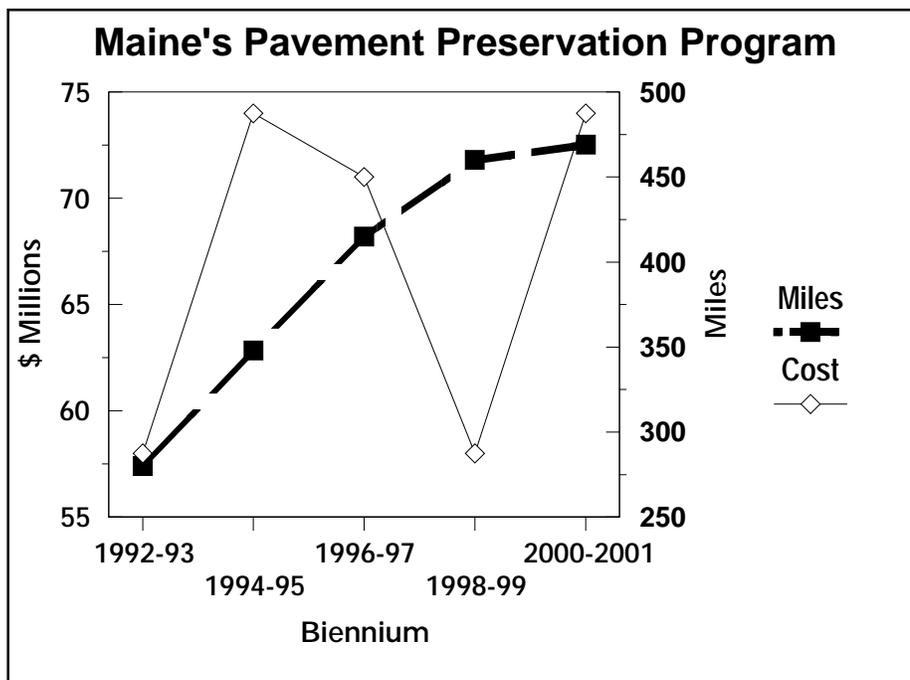
The distribution of pavement conditions reveals that 73% of state highway miles are in good condition, 26.8% are fair, and 0.2% are poor. See chart at right on **Pavement Condition Distribution**. The present distribution of conditions shows a concentration of mileage around the dividing line between “good” and “fair”, a pavement condition rating of 3.2. This substantial group of



pavements will be coming due for preservation in the next 4 to 6 years. It would be ideal if the conditions were evenly distributed, providing a more uniform pavement preservation program.

The Pavement Management Program will seek to flatten out the distribution curve. This can be accomplished by adjusting the life-cycle pattern of pavement currently in place.

In order to meet the pavement preservation needs within the financial resources available, the MDOT, beginning with its 1994-1995 BTIP, has instituted an effort to reduce the cost of its pavement preservation



As the result of streamlining its project development and construction processes, substantial efficiencies have been realized. The chart entitled **Maine's Pavement Preservation Program** shows how this program has increased significantly over the past four biennia, from 280 to 460 miles per biennium, while the cost has varied over time.

2.2.1.3 Highway Improvement Backlog Mileage

Improvements are needed to bring over 2500 miles of highway, excluding minor collectors, up to modern safety standards and adequate structural capacity. These miles are considered to be the 'backlog' of reconstruction needs. The cost to improve these highways currently exceeds 1.19 billion dollars. See the table below, the **Highway Improvement Backlog Mileage Table**, for a regional breakdown of highway backlog miles, percentages, and costs.

Division	NHS / Principal Arterial				Minor Arterial				Major Collector			
	Total Deficient		Cost		Total Deficient		Cost		Total Deficient		Cost	
	Miles	Miles	Percent	Millions	Miles	Miles	Percent	Millions	Miles	Miles	Percent	Millions
1 Northern	205	15.5	8%	12	174	31.2	18%	17	488	155.7	32%	58
2 Downeast	144	19.3	13%	29	124	27.6	22%	19	460	273.2	59%	109
3 East Central	278	0	0%	0	265	42	16%	26	545	284.6	52%	88
4 Central	290	9	3%	19	163	5.3	3%	10	551	278.2	50%	94
5 Midcoast	192	14.4	8%	18	65	0.5	1%	1	487	254.8	52%	150
6 South Coast	314	19.6	6%	19	295	74.5	25%	59	599	323.7	54%	181
7 Western	191	38.5	20%	58	265	86.9	33%	60	570	352	62%	160
Statewide	1614	116.3	7%	155	1351	268	20%	192	3700	1922.2	52%	840

2.2.1.4 Congestion

Traffic congestion is the delay, or excess travel time, that results when traffic volumes approach the vehicular capacity of the roadway. Increased traffic congestion is costly to society, resulting in lost productivity, increased fuel consumption, reduced air quality, and increased numbers of crashes. In the rural areas of Maine, traffic congestion is not usually a significant problem.

Most RTACs, particularly in southern Maine and along the coast, have identified traffic congestion as a concern within their regions and are working with the MDOT to develop effective strategies to reduce system demand or increase capacity as appropriate.

As traffic volumes increase on our existing highway system, so will traffic congestion. While traffic volumes may grow at a steady rate, traffic congestion will grow at a faster, accelerating rate. For typical urban streets, the amount of congestion grows rapidly as more of the available capacity is used. On controlled access highways, such as the Interstate, congestion grows more slowly.

In Maine, projected increases in vehicle-miles of travel (VMT) are likely to create significant increases in traffic congestion. Current studies in Augusta and other urban locations suggest that the amount of traffic congestion on some urban streets will more than double if no actions are taken to manage it. Among rural highway corridors, the most congested include the following:

- Interstate 95 Portland-Brunswick
- Route 1 Bath-Wiscasset
- Route 1 Ogunquit - Wells
- Route 1 Ellsworth
- Route 201 Augusta-Gardiner
- Route 302 Portland-Windham

Among urban Interstate corridors, I-295 in Portland-South Portland is the most congested, followed by I-95 in Bangor. There are three general approaches that can be taken to reduce or minimize the growth of traffic congestion. The first is to improve the efficiency of the existing roadways through actions such as intersection improvements, traffic signal coordination, and access control - Transportation System Management (TSM) measures. The second is to manage travel demand by encouraging drivers to carpool, use public transportation, work staggered work hours, or even work at home - Travel Demand Measures (TDM). The third is to increase highway capacity by widening existing roadways or by constructing new ones. Each of these approaches has applications in Maine's transportation system. The need for sound planning at the local and regional level is paramount to support these measures.

2.2.3 Bridges

Maine has 3,564 public highway bridges, each having a clear span length of at least 10 feet. Excluded are bridges used strictly for rail traffic or for pedestrian use, as well as structures owned by the Maine Turnpike Authority, federal agencies, and private entities. Of the 3564 public bridges, 2842 are categorized as "traditional" bridges, and 722 are categorized as steel bridge culverts. Steel bridge culverts are defined as those steel culverts with a single span greater than 10 feet or multiple culverts with a combined opening of 80 square feet or more.

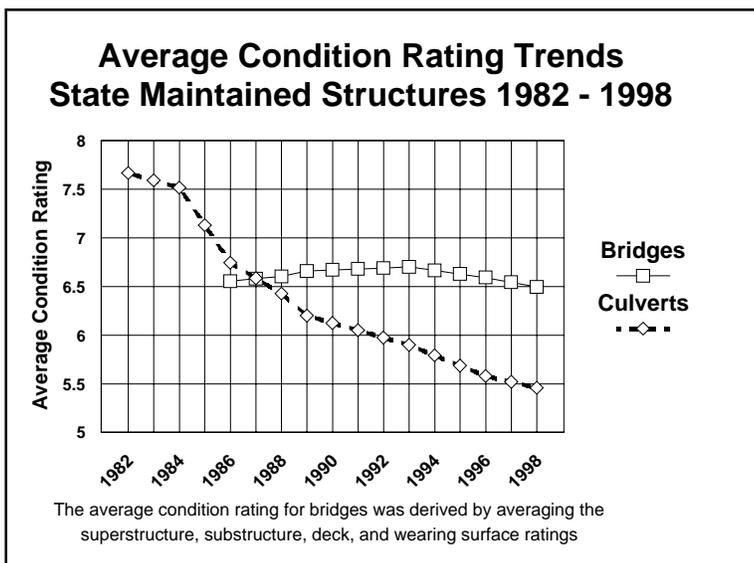
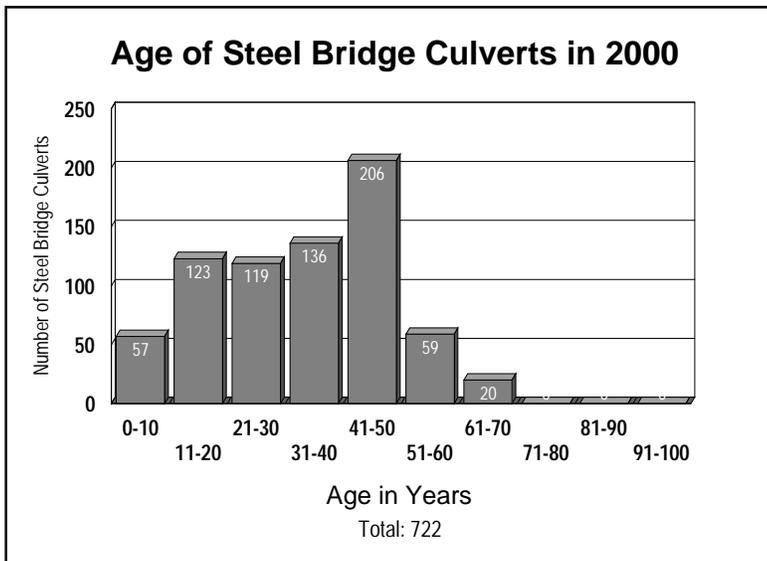
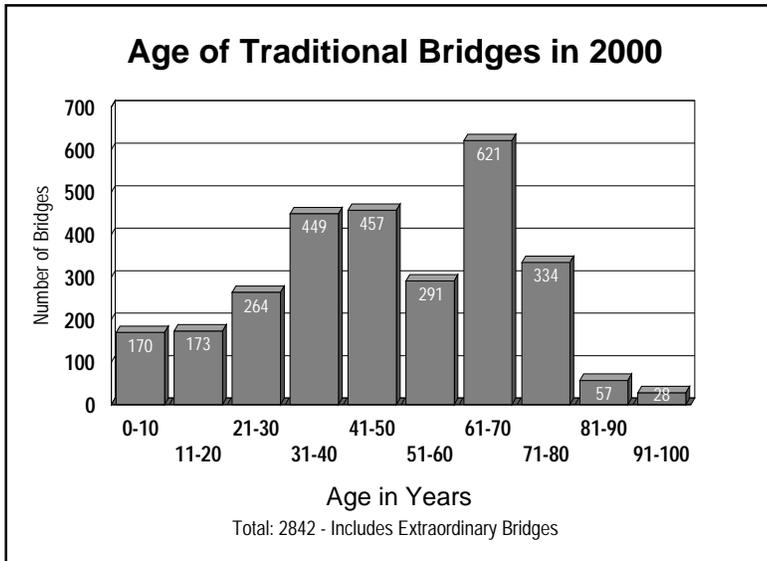
2.2.2.1 Age of Bridges

One indication of the significance of Maine’s bridge needs is the distribution of their age. If no bridges are replaced for the next 20 years, by year 2020 approximately 47 percent of Maine’s 2842 bridges will be over 70 years old. This is the normal service life for this type of bridge, assuming an adequate level of maintenance and rehabilitation. Similarly, over 58 percent of Maine’s steel bridge culverts will exceed their normal service life of 50 years by the year 2020.

It would be desirable from a network management stand point if the bridges were uniformly distributed with respect to remaining service life. The age charts illustrate that both Traditional Bridges and Steel Bridge Culverts significantly vary from an optimal age distribution, and suggest a peak demand for available funds over the next twenty years.

2.2.2.2 Bridge Condition

Another indicator of the magnitude of needed improvements is the condition of the major bridge components. Each bridge in Maine is inspected every two years and the various components of the bridge are rated according to national bridge inventory standards. Every component of each bridge receives a condition rating from 0 (failed condition) to 9 (excellent condition). The chart on the previous page entitled **Average Condition Rating Trends** shows the gradual decline in the average condition of steel bridge culverts since 1982, while the average condition of “traditional” bridges has remained stable over the same period.



2.2.2.3 Age and Condition

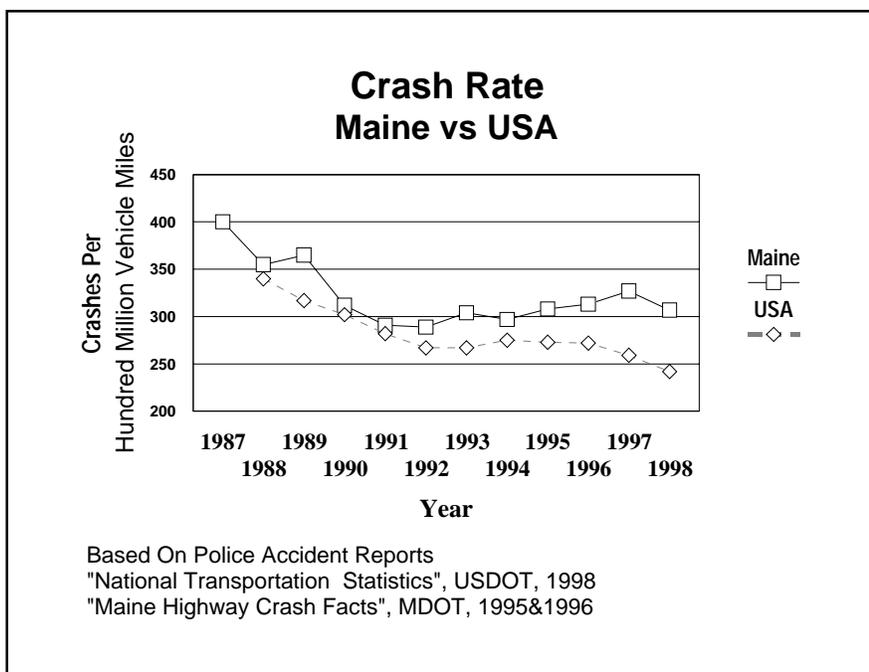
Age distribution and historical condition trends are each strong indicators of the health of Maine’s bridge network, yet their combined effects can provide an additional measure. Presently there are 350 bridges over 70 years old. Approximately 40% of these bridges have at least one primary component that is in poor condition, indicating that nearly 140 bridges require immediate improvement. In addition, over one third of the oldest Steel Bridge Culverts are in poor condition and should be improved within the next six years.

2.2.3 Safety

The economic impact of highway crashes in Maine is nearly \$1.2 billion per year. In 1998, nearly 40,000 crashes involving approximately 95,000 people occurred on Maine’s approximately 22,600 miles of public roads. These motor vehicle collisions resulted in 175 fatalities, over 7,500 known injuries, and 8,700 possible injuries.

In 1998 crashes in Maine resulted in nearly \$1.2 billion in injury and property damage alone, excluding lost productivity.

As shown in the chart at right labeled **Crash Rate - Maine vs. USA**, the crash rate in Maine is slightly greater than the national rate. The fatality rate in Maine has recently been lower than the national rate.



Historically the number of crashes parallels the number of vehicle miles traveled (VMT). However, while the number of vehicle miles traveled in Maine has grown over 40% from 1987 through 2000, the number of crashes, the crash rates, the fatality rate, and the costs attributable to crashes have shown an overall decrease. More recently (1991- 1996), however, the number of crashes has increased as traffic volume has increased, though the crash rate and fatality rate have declined. For the period 1998-1999, the number of crashes has also decreased. Improved road design, vehicle safety features, and public awareness of safety issues have all contributed to the declines both in the crash rate and fatality rate. See chart below labeled **Maine Crashes vs. Vehicle Miles Traveled**.

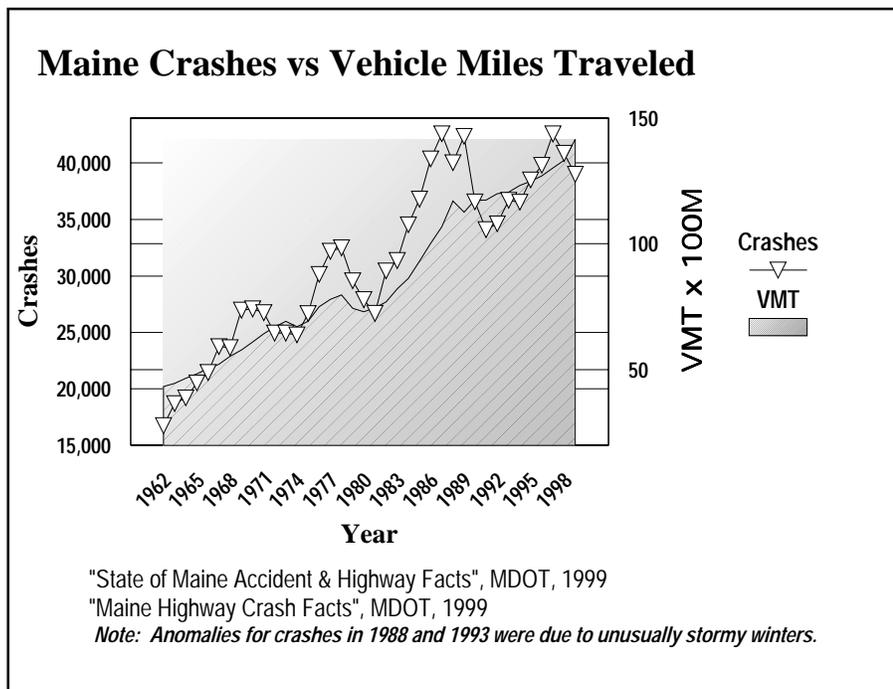
Crash trends, however, correlate well with economic activity levels and the number of crashes closely follows the number of people employed in Maine.

Collisions with trains have continued to show a downward trend. However, the number of motor crashes involving bicycles and involving pedestrians have increased somewhat over the past several years.

There is a strong correlation between VMT and crashes on Principal Arterials, Minor Arterials and Collectors. On the Interstate system, however, there are many fewer crashes per vehicle mile than the norm. On Local Roads it is just the opposite, with more crashes per vehicle mile than the average for the other systems.

As noted previously, a correlation has been observed between economic activity and crash rates. Given the economic downturn of the first half of the last decade, it is understandable that the trend in crashes has been downward.

However, this downward trend has already begun to subside in recent years as the economy has improved. It is expected over the longer term that the number of crashes will continue to increase, due to an increase in vehicle miles traveled. Increased emphasis will be needed to make our roads safer, particularly with regard to Run Off the Road crashes, and crashes with bicyclists, pedestrians, and animals. As passenger train service is reintroduced into Maine, extra efforts will be required to prevent an increase in motor vehicle crashes with the faster and more frequent train movements at public grade crossings.



2.3 Passenger Transportation

Passenger transportation is the movement of people by modes other than single occupancy vehicles, such as trains, airplanes, ferries, buses, vanpools, and carpools. These modes can play a critical role in reducing vehicle miles traveled while providing cost effective transportation. The challenge is to get the driving public to utilize other modal options. Since the end of World War II public policies and investments have favored the private automobile. This has resulted in a fragmented, outdated, and underfunded passenger transportation system that does not meet the mobility needs of most travelers. It is time for a new approach to public transportation.

The aging of our population, growing congestion in urban areas and on major corridors, and stagnating incomes support a stronger investment in a multimodal passenger transportation system to provide options to the private automobile. This system must be innovative and designed to meet current and future needs. We need to move beyond outdated services based on bygone land use and commuting patterns and concepts of service. The passenger transportation system of the future must be flexible, serve a variety of travelers, and most importantly, be an affordable, interconnected system that provides expanded mobility.

Regional public transportation systems offer practical solutions to congestion. Acadia National Park provides one example. Through a Memorandum of Agreement, the US Departments of Interior and Transportation are employing public transportation to reduce congestion in six national parks, including Acadia. The Maine Department of Transportation is working with the Park and other interested groups to create and promote a transit system on Mount Desert Island and to offer modal options on the mainland to reduce the number of cars traveling onto the island. In its first operating season, the Island Explorer carried over 140,000 passengers, twice the projected ridership.

Connectivity between the modes is critical for attracting riders. Alternatives must be easy to use, dependable, and more attractive than driving. This requires a regional, systematic method to providing mobility, rather than isolated modes concentrated in municipalities. The Office of Passenger Transportation was created in 1996 to provide this holistic approach.

Through *Explore Maine* (formally referred to as the Strategic Passenger Transportation Plan), the Office of Passenger Transportation proposes to develop an integrated system of transportation options that will attract travelers to Maine, provide modal choices for Maine's citizens, and supply efficient mobility to the traditionally transit dependent. This integrated system will make public transportation more visible and viable. The plan will guide the State's investment in passenger transportation over the next twenty years.

Explore Maine focuses on the development of alternative modes of transportation with a particular analysis which supports tourism through the promotion of transportation choices that will reduce dependency on private automobiles. This will benefit Maine in numerous ways. Providing travel options meets the intent of *TEA-21*, the Clean Air Act Amendments, and *STPA*. Reducing vehicle miles traveled is the most effective way to limit air polluting auto emissions. Increased access to various modes can affect land use patterns by encouraging residential and commercial development in core communities where focused infrastructure investments can take place. The plan will create a transportation network that will attract new visitors to Maine. Increased tourism will benefit Maine's economy. The positive impacts of multimodal transportation will help preserve the quality of life and landscape that makes Maine "the way life should be" and a leading vacation destination.

The plan proposes:

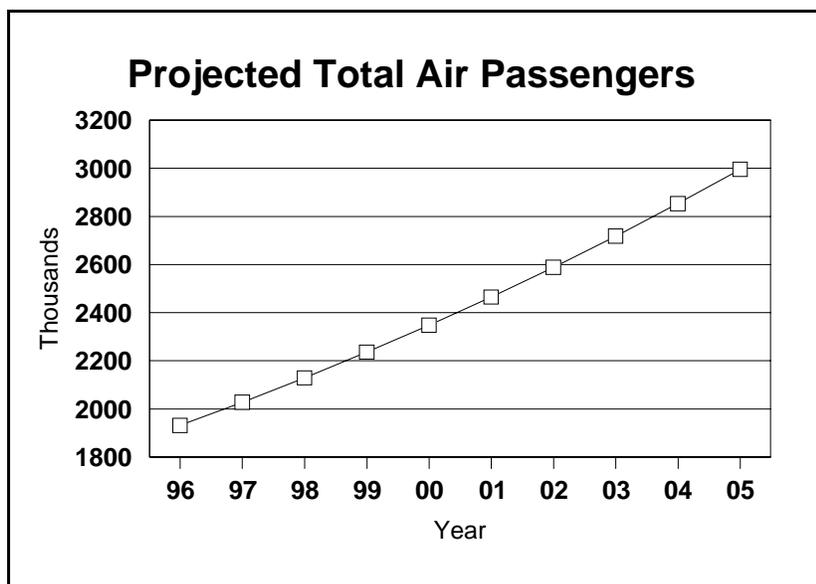
- the expansion of passenger rail service on private and public lines
- high speed ferry service linking major coastal cities and towns
- coastal and river ferries
- intermodal hubs and support services
- coordinated motorcoach and shuttle services
- public - private partnerships
- deployment of Intelligent Transportation System (ITS) technology
- development of a 'Smart Card' system

Phase One of the plan focuses on the heavily traveled Route 1 corridor from Portland to Bar Harbor. Future expansion will extend the system Downeast and inland, as demand grows. The plan also calls for an entrepreneurial style for providing transportation, as the system is to be self-supporting. Profitable system elements will support those elements that require subsidies, such as local bus services.

2.3.1 Aviation

Air service, both chartered and scheduled, will play an increasing role in attracting visitors to Maine. Maine’s aviation system consists of 36 publicly owned airports, six of which are served by regularly scheduled passenger service. In 1997 a total of 2 million passengers (enplanement and deplanement) used these commercial services into or out of Maine. This number is projected to increase to nearly 3 million by 2005. Portland International Jetport serves the majority of domestic flights. Bangor International Airport provides refueling services for international flights, but as new aircraft enter the overseas charter market, the necessity for this refueling stop is being eliminated. Both of these airports are actively working to expand their market. Bangor International Airport has begun an aggressive campaign to attract overseas

charter flights, and has recently signed a contract with Finnair for regularly scheduled flights between Bangor and Helsinki. Portland is expanding service to cities beyond Boston. *Explore Maine* envisions these two major airports as serving a growing number of visitors from the US and Europe. The plan also proposes the development of intermodal hubs at other airports where linkages with rail are feasible. This will allow for easy transfer between modes at major gateways and destinations.



Maine citizens depend upon air transportation to link distant cities within the state, and to access out of state destinations. Currently Presque Isle has service to Boston and instate locations. Both Portland and Bangor are expanding beyond Boston to New York, Atlanta, Philadelphia, and Cincinnati, and Portland has service to Washington DC, and Chicago. As our economy shifts to the service sector the importance of air service will also grow.

Major needs to be addressed to support this air service expansion include:

- pavement repair and upgrade
- expansion of service to cities beyond Boston
- system modernization

2.3.2 Rail Passenger Service

Underutilized rail lines exist in many of the heavily traveled corridors throughout the state. These rail lines can function as high occupancy vehicle (HOV) lanes, providing an alternative to driving on congested highways. Many existing rail lines can link Maine destinations to important markets:

- Guilford track between Boston and Brunswick
- state owned track from Brunswick to Rockland
- the State-owned Calais Branch connecting the Bangor area with Frenchman's Bay and on to Calais
- the St. Lawrence & Atlantic and the Bangor & Aroostook railroads connecting to Montreal, which may provide access to Via Rail service in Canada
- St. Lawrence and Atlantic rail line to Portland's waterfront

Passenger rail service in Maine requires public-private partnerships, as many lines are privately owned and the state is prohibited from providing rail service. Since 1989, the MDOT has been working to restore Amtrak service between Boston and Portland on privately owned track. Trainriders Northeast and other advocacy groups have supported this effort. Agreements between the state, Amtrak, and Guilford Transportation have recently been reached and track improvements began in 1999, with service expected to begin in 2001. In addition, the MDOT is proposing to develop a station in Portland's Bayside area, with connectivity to the St. Lawrence and Atlantic Rail Road.

Issues regarding this service are:

- necessary track improvements
- increasing speeds to be competitive with automobile traffic
- extension of the service to Brunswick
- station locations

The State of Maine owns approximately 300 miles of rail right of way, including the Rockland Branch from Brunswick to Rockland, the Belfast & Moosehead Branch, the Mountain Division in Western Maine, and the Calais Branch. The first phase of *Explore Maine* calls for extended Amtrak service to Brunswick, and service on to Rockland. Improvements to the Rockland Branch are expected to be included in the upcoming and future BTIPs. Issues to be addressed include:

- costs of the necessary track rehabilitation
- station locations
- environmental impacts

2.3.3 Marine Highway

Maine's island communities without bridges are connected to the mainland by public and private ferry services. Communities along Maine's coastline are dependent upon highways for connectivity to one another. *Explore Maine* calls for the development of a marine highway linking Portland, Rockland, Bar Harbor and Eastport by high speed ferries. Coastal ferries will also tie Bath and Boothbay Harbor into the marine highway. Interim investments to allow for rapid initiation of marine services have been identified. Portland will consolidate passenger facilities on the Portland Waterfront. The state will work with private service providers by making the necessary shore side infrastructure investments to support the services.

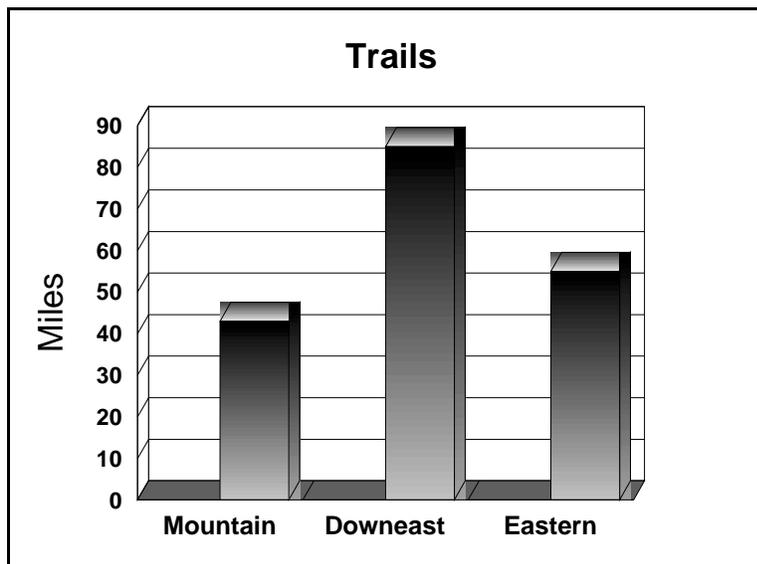
Issues to be addressed include:

- identification of effective long term investments in Rockland to support future marine needs
- future expansion to Boston and/or Downeast as demand warrants

2.3.4 Trails

As part of its Bicycle and Pedestrian program, the Office of Passenger Transportation is promoting the development of three major trails on or near discontinued rail lines in Maine:

- Mountain Division in Cumberland and York Counties
- Downeast Trail in Washington and Hancock Counties
- Eastern Trail in Cumberland and York Counties



All three trails will connect with the transportation network proposed in *Explore Maine*. These trails will attract visitors to underutilized regions of Maine as well as onto alternative travel modes. In addition, the MDOT is studying possible trail locations for the continuation of the East Coast Greenway into Maine.

Issues include:

- local support
- possible conflicting uses
- costs
- environmental impacts

2.3.5 Fixed Route Transit Services

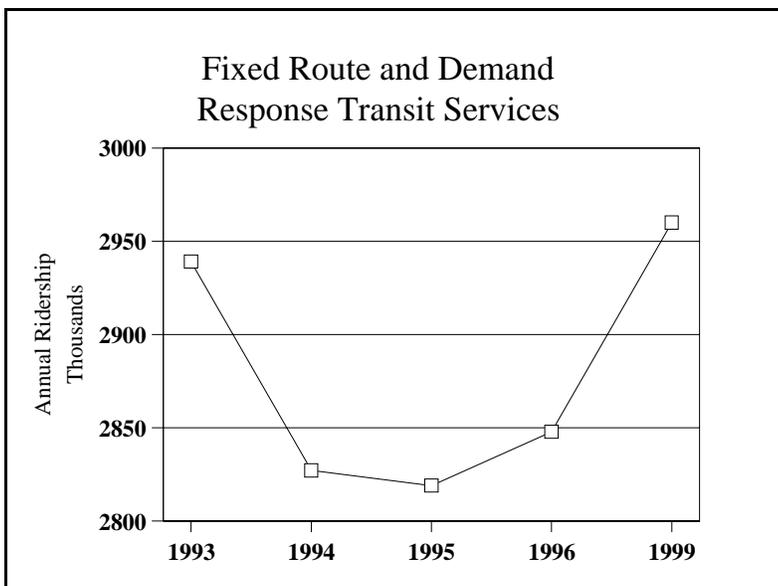
Fixed route services are those open to the general public, who pay a fare, and run on a schedule. These include commuter buses, ferry services, and private intercity services linking urban areas within a state or between states. Eight urban transit systems serve Maine’s major service center cities. In addition, Maine is served by eleven rural and urban fixed route transit agencies providing intracity public transportation service between outlying areas and central locations.

Issues facing the providers of these services include:

- declining ridership and an increased dependence on subsidies
- routes that do not reflect the growth in suburban, low density residential and commercial development
- an aging fleet
- changing to clean fuel vehicles
- inadequate maintenance and marketing budgets.

2.3.6 Demand Response Transit Services

Demand response transit is door-to-door service that is scheduled by appointment. Buses, vans, or cars are used. Use of this service has been limited to human services clients, such as those receiving Medicaid, attending sheltered workshops, or senior citizen programs, with transit providers usually reimbursed by social service agencies. Ten transit agencies provide these services throughout Maine. Today the demand for this service by social service clients is growing faster than the funding available. In addition, as the elderly segment of Maine’s population grows, there is an increasing call for demand response service by those not in social service programs. A model program, the Independent Transportation Network, was recently started in Southern Maine to provide transportation for non-driving elderly citizens.



Issues include:

- service can be expensive to provide
- growing demand by non social services clients
- lack of coordination
- service delivery may not adequately meet existing and future needs

In 1996 the above described fixed route and demand response transit providers transported over 2.8 million passengers in 263 buses and vans.

2.3.7 For-Profit Transit Providers

The growth of private, interstate transit service in Maine is an example of the successful transit service designed to meet travelers needs. Concord Trailways and Vermont Transit connect Maine communities and provide express service from Bangor, Portland, and the coast to the South Station Intermodal Facility in Boston. To meet growing demand Concord Trailways has recently added buses to its scheduled service and moved to a larger facility in Portland, as well as providing seasonal service from Bangor to Bar Harbor. Cyr Transportation provides connections between Bangor and Aroostook County, while West’s Transportation links Washington County to Bangor.

Another successful element of Maine’s transportation network is the private motorcoach charter industry. While ridership data is not currently available, this sector moves people into Maine from other states, and provides intermodal connections with other modes, such as charter air service and cruise ships. *Explore Maine* envisions the motorcoach industry as playing a critical role in providing vacation travel in Maine.

2.3.8 Marine Ferry Services

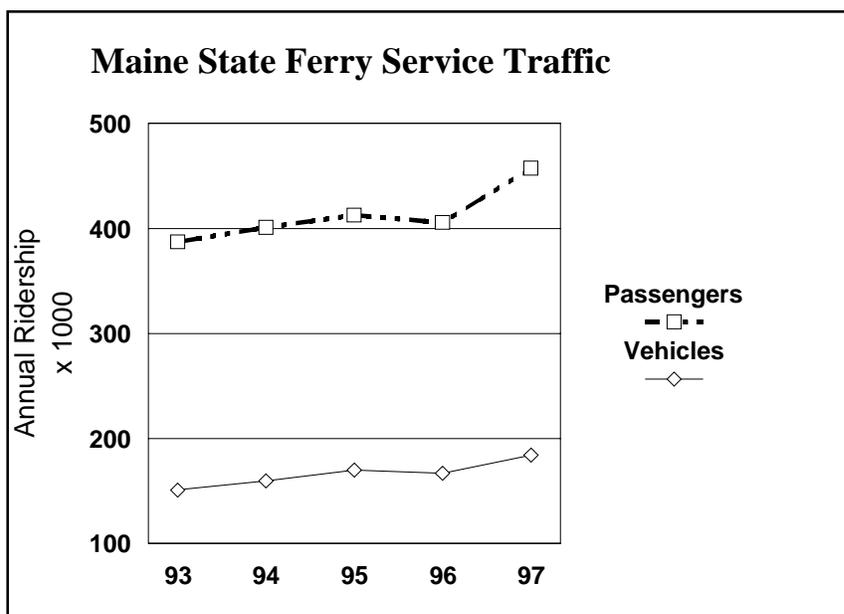
2.3.8.1 Maine State Ferry Service

The Maine State Ferry Service provides transportation to Islesboro, North Haven, Vinalhaven, Swan’s Island, Matinicus and Frenchboro. The system is owned, operated and subsidized by the State of Maine and provides year-round service. Schedules are significantly expanded during the summer months to meet peak seasonal demand.

Ridership on the MSFS has increased by over 38% since 1987. In 1997, the Maine State Ferry Service carried:

- 457,480 passengers
- 184,214 vehicles
- 9,424 bicycles

For the fiscal year ending June 30, 1997, the system experienced total operations costs of \$4.5 million. The current fare structure covered approximately 53% of operating costs through user charges. Island based round-trip fares were set at 50% of mainland fares. Capital costs for the MSFS are subsidized by the state and federal governments. A policy of subsidized fares was established early in the 1960’s as a tool to preserve the year-round communities on the islands.



Issues facing the MSFS include:

- vessel replacement
- pier and bridge improvements
- shortage of parking
- demand approaching or exceeding capacity of service to Vinalhaven
- transportation of wastes and fuels
- increasing demands for service to island communities

The MV Captain Henry Lee



2.3.8.2 Other Ferry Services

The MDOT works closely with Casco Bay Island Transit District (CBITD) and the towns of Cumberland and Yarmouth to provide access from Casco Bay islands to the mainland. Numerous private operators provide seasonal or year-round transportation to other island communities.

2.3.9 Park and Ride Program

Currently the State of Maine has 34 established park and ride lots throughout the state with an overall capacity of 1,692 spaces. These lots connect rural residential areas with service center communities, providing opportunities for carpooling. Park and ride lots are a low cost and effective strategy to reduce single occupancy vehicle use. The demand on these lots will grow as passenger rail and other modes of public transportation expand in Maine. Program development criteria developed by the Department have been incorporated into work plans for the regional planning councils. The councils will develop a list of potential park and ride locations for prioritization by the RTACs. The Office of Passenger Transportation will develop new park and ride lots to meet the highest rated requirements from each RTAC. The Department anticipates investing \$100,000 per biennium in this program.

Issues include:

- need for expansion in areas of heavy demand
- underutilized lots in areas of low demand
- need for user amenities

2.3.10 Vanpool/Rideshare Program

The MDOT has run a commuter van program for over twenty years. In 1996, the MDOT initiated “Go Augusta”, a transportation demand program to reduce congestion in the capital region through the use of other modal options. “Go Augusta” is responsible for the vanpool program, the development and implementation of a computerized rideshare program, and an education campaign.

“Go Augusta” and the Greater Portland Council of Government’s Rideshare Program are test marketing the effectiveness of these demand management techniques. Together they provide coordinated commuter services in the central and southern parts of Maine. Future expansion of the matching service into the Lewiston/Auburn Area is anticipated. If successful, “Go Augusta” will result in the development of a Transportation Management Association consisting of public and private sector employers and employees working together to reduce congestion in the capital region.

2.3.11 Bicycle and Pedestrian

Programs for bicyclists and pedestrians in Maine are coordinated through the Bicycle and Pedestrian Coordinator of the Office of Passenger Transportation. Support to the Coordinator is offered through the Maine Bicycle Council, an advisory committee representing bicyclists, federal and state agencies, and advocates interested in promoting bicycle travel. State bicycle and pedestrian plans identifying existing systems and articulating goals for the future were prepared in 1995.

Three different systems for bicycling are coordinated by MDOT:

Rural Highways - MDOT has established a shoulder paving policy that includes paving shoulders for all roads on the National Highway System, all roads with Summer Average Daily Traffic (SADT) above 4000 and projects designated in MDOT's bicycle or pedestrian plan.

Issues include:

- the majority of rural highways are neither safe nor suitable for the average bicyclist
- safety challenges during peak travel hours and seasons
- sight distances restrict motorists view of bicyclists in many areas
- limited funds available for the miles of road deemed deficient to both motorists and bicyclists

Urban Streets - Most arterial streets in the urban compact areas of Maine are also neither safe nor suitable for use by the average bicyclist. Most arterials do not have any extra lane or shoulder width to accommodate bicyclists. Newer development in urban or suburban areas lack sidewalks. Bike lanes and paths are also rare within urban areas. Federal Enhancement funds, a set-aside program to enhance the transportation system, are available to local municipalities for the construction of bicycle and pedestrian facilities.

Issues include:

- streets are very difficult to widen
- needs have not been identified at the local level
- lack of required local funds

Trails: Off-road trails connecting significant origins and destinations are nearly nonexistent at the present time. Trails for recreational mountain biking are coordinated through the Maine Department of Conservation. Sections of trail on abandoned rail beds exist across the state. As discussed previously, the MDOT is focusing its efforts on three major trails; the Mountain Division, Downeast Trail, and the Eastern Trail, and their connectivity to other trails and modes.

Issues are:

- trails are not formally developed and lack an easement for use
- off-road trails are expensive
- limited funds

2.3.12 Interconnections

The current system features geographically isolated, modal-specific services. A systematic approach is needed to improve connections by providing travelers with the ability to move easily between modes. Highway, marine, rail, transit, and aviation terminals should be co-located to the maximum extent practical. Ideally, travelers should be able to move through the system without being aware of changes from one service provider to another. Local transit services will provide access to local destinations for travelers arriving by plane, train, or ferries. This should increase the fare box revenue for local transit services.

Human service recipients should also be able to utilize an interconnected system, reducing the need for more costly demand response service, while increasing the fare box revenues of fixed route elements of the system. The use of Smart Card technology should allow human service clients to pass through the system undifferentiated from other users, as the human service agency will be billed directly.

A system-wide approach should also help reduce the need for operation subsidies, as profitable elements of the system will support those with deficits. The system will assist in ensuring ridership on different elements. For example, rail service on the Rockland Branch will increase the market for Amtrak service to Boston. The MDOT is conducting a study of Transit Needs and Connectivity in 2000 and 2001 to identify the best methods of meeting the current and future transit needs of Maine’s citizens.

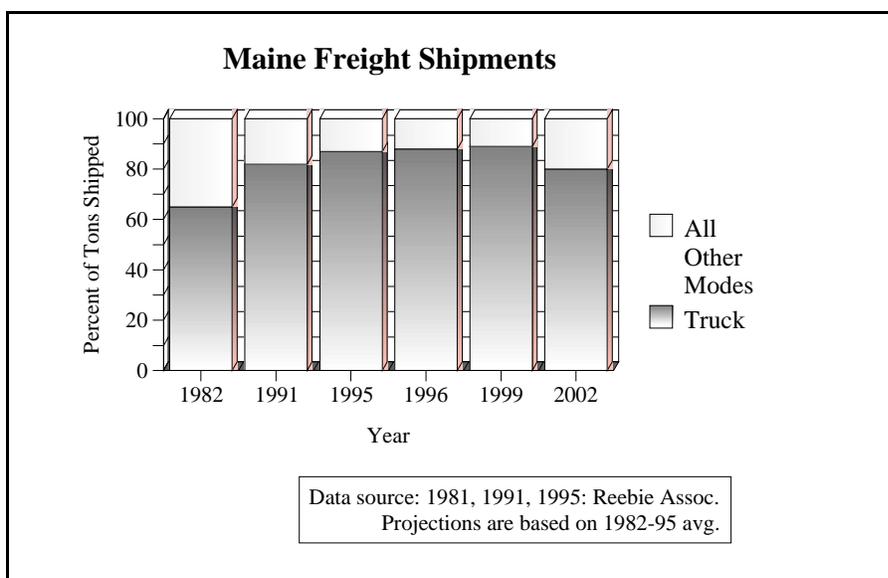
A major obstacle to connectivity is the proliferation of single provider terminals in Maine cities. Many of these terminals lack adequate parking, are in poor condition, or are inadequate to meet current and projected demand. For example, in Portland each public transportation provider has a separate facility and most have no transit connections. The Department will conduct feasibility studies for intermodal transportation facilities in Bangor, Trenton, and Auburn.

2.4 Freight Transportation

The national trend towards “just-in-time” operations by manufacturers and businesses has increased demand for an efficient, free-flowing freight transportation system. The mission of the MDOT Office of Freight Transportation (OFT) is to better balance all modes of freight transportation and develop new infrastructure, where appropriate, to give Maine shippers more choices when transporting their products. OFT also works to help create a free-flowing, continuous system between port, rail, air, and motor carrier connections and seeks out projects that will attain this goal.

2.4.1 Motor Carriers

As businesses develop even more efficient logistics supply chains, a larger percentage of Maine manufactured freight is being moved by truck. Currently, motor carriers are by far the primary mode of freight transportation in Maine, constituting 89% of all transported freight tonnage in 1999, up from 65% in 1982. According to the 1992 FHWA Census of Transportation, motor freight transportation in Maine generated \$551 million in revenues and employed 5,685 people. Motor carrier freight movements are supported by over 22,000 miles of state and local highways which require substantial capital investment to maintain and upgrade. See chart entitled **Maine Freight Shipments**.

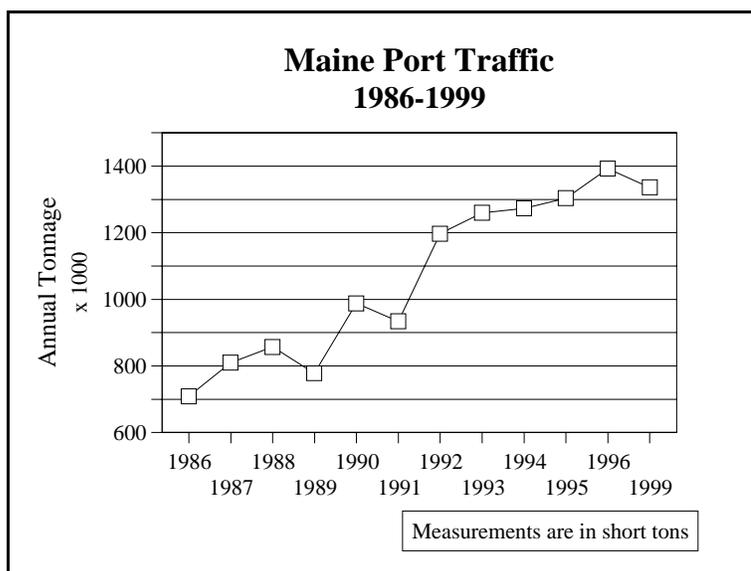


The development of “just in time” delivery systems has profoundly altered the motor carrier community in recent years, much as deregulation of the motor carrier industry did in the early 1980s. As noted, this decentralization of freight delivery and inventory control systems has contributed to the increased dominance of motor carriers, at the expense of railroads, in the movement of freight in Maine. The resulting increase in heavy truck traffic on our highways and bridges has necessarily increased the rate of pavement consumption and bridge stress, particularly on older local and secondary highway systems. This increased traffic has implications for our highway and bridge funding programs in terms of future planning and the efficient allocation of scarce resources. It also has an impact on the increasing traffic congestion of our major highway corridors such as the Maine Turnpike, and an impact on highway safety in terms of large vehicle interaction with automobiles.

A major challenge facing the state today is the current review by Congress of federal policies on commercial vehicle size and weight. As part of this review, the Federal Highway Administration is undertaking a Truck Size and Weight Study which will consider changes to current federal policies. These policies govern the use of Maine’s vital Interstate System by heavy trucks. Currently, Maine state weight limits are significantly higher than those allowed on the Maine Interstate System, which has resulted in the use of primary and secondary roads adjacent to the Interstate by heavy vehicles which would prefer to use the Interstate System. Liberalization of federal weight limits could potentially shift heavy vehicle traffic onto the Interstate System and off of the state primary and secondary roads. Increases in allowable size and weight on the Interstate could have implications for highway safety, the market share of competing freight transportation modes, and the allocation of scarce highway and bridge resources. The Office of Freight Transportation will be involved in the management of MDOT’s response to this federal study and to any proposed changes in federal truck size and weight policies.

2.4.2 Cargo Ports

Maine’s three cargo ports of Eastport, Searsport, and Portland have shown steady, consistent growth since MDOT began to participate in their growth and expansion. MDOT has followed a policy for the past 20 years, called the Three Port Strategy, that focuses large industrial port development in these three strategic locations. Maine’s Three Port Strategy has facilitated the recently completed terminal at Estes Head for the port of Eastport, the current rehabilitation of the Mack Point facility at the port of Searsport, and the Cargo And Passenger (CAP) study for the port of Portland. The growth of these ports, which averaged 6.1% annually over the last ten years, was due in large part to Maine shippers using Maine ports in preference to out-of-state and Canadian ports, as well as to



continuous improvements and development at the three ports. A more comprehensive analysis is needed in order to better understand all the factors contributing to this growth.

With MDOT's help, the port of Portland introduced a container feeder service to Halifax in 1991 which has proved to be successful, often breaking the 100-container a week mark. Service from the International Marine Terminal connects Maine shippers to worldwide markets quickly and cost-effectively through Halifax. Merrill's Marine Terminal, a private facility specializing in breakbulk and bulk products, has also shown strong, consistent growth over a long period of time. The Portland CAP study has helped to provide a vision of where the port of Portland will be headed in the 21st century. With the opening of the new Casco Bay Bridge, these and other port of Portland facilities are able to handle the larger ships used in today's maritime industry. The recently completed maintenance dredging of Portland Harbor will also help to ensure the continued success of the port.

Searsport's port development has been refocused on the existing Mack Point facility after efforts to build a new cargo port at Sears Island were suspended. OFT is currently working with the operators of the Mack Point facility to upgrade the port facilities, which currently can only handle certain bulk and breakbulk products due to their antiquated condition. While Mack Point facilities are in serious need of repair and upgrade, they have still shown consistent annual tonnage growth over the last ten years.

The port of Eastport, which began operations in 1981, has shown strong, upward growth since its inception, usually between 10%-18% annually. The port's primary customer is Georgia Pacific which exports value-added forest products all over the world. The increased demand has warranted the construction of a brand new \$14.5 million, two-berth, 634-foot pier and adjacent warehousing at Estes Head. This investment by MDOT and the Eastport Port Authority has also had the effect of generating several million dollars in land side investment by the Maine Department of Economic & Community Development, the federal Economic Development Administration, and the private sector. Construction of the facility was completed in July 1998. The new facility should put the Port of Eastport in a very advantageous position heading into the 21st Century for handling traffic from eastern and northern Maine.

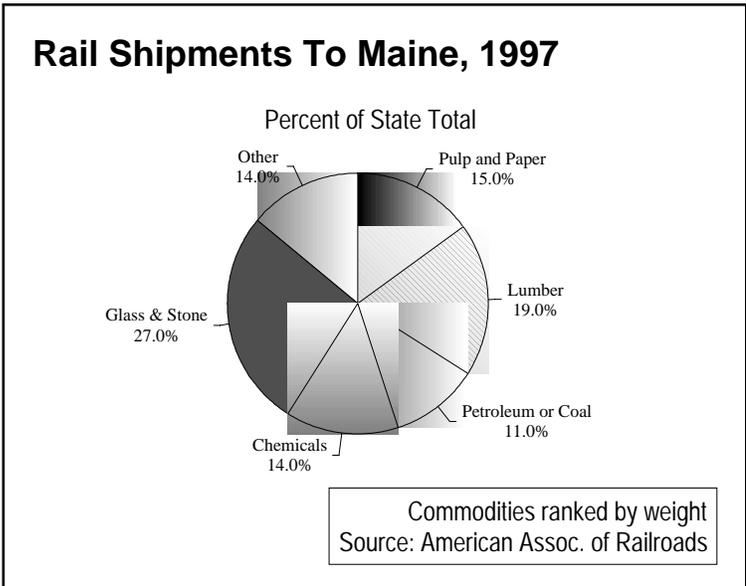
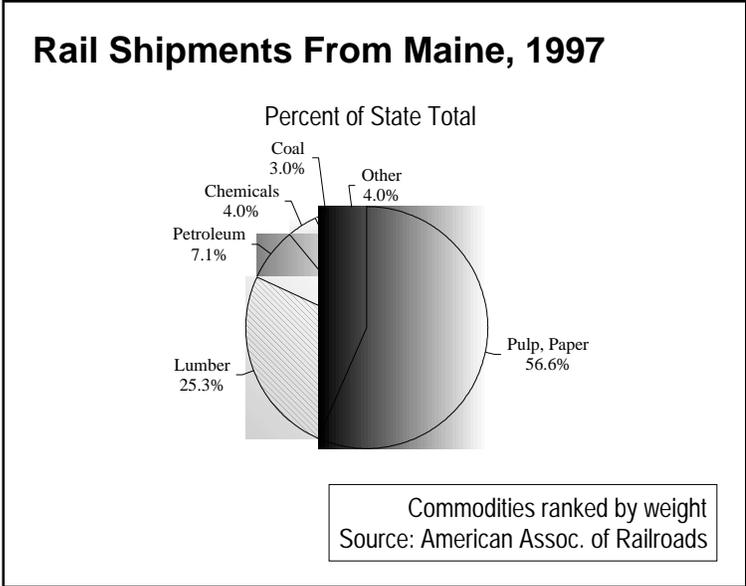
A significant portion of Maine's coastal economy is dependent upon the condition of marine infrastructure at Maine's smaller harbors. OFT has also focused attention on Maine's smaller harbors through the Fish Pier Program in the 1980's and the Small Harbor Improvement Program (SHIP) beginning in November 1995. SHIP has been successful so far in funding 30 public waterfront projects in 28 coastal Maine towns totaling \$2.1 million. These funds generated an additional \$1.2 million in local investment and match. OFT has also taken on maintenance dredging prioritization for the State of Maine. The prioritization list which OFT will develop for dredging activities will be used by the US Army Corps of Engineers in determining which projects are carried out.

2.4.3 Freight Railroads

The State of Maine is served by six private railroads operating over 1,100 miles of trackage traversing most metropolitan areas and many rural areas of the state. Rail freight transportation in Maine has lost modal share over the last ten years for a number of reasons. Factors contributing to the decline of rail modal share include the concentration of development along the Interstate system, the movement of businesses away from rail locations, the trend towards “just in time” delivery, and other challenges. Although rail service to most areas of the state has been acceptable, there are some areas, like Washington County, where rail service has not met industry needs. Rail service is particularly cost effective when moving high-volume, low-value commodities, such as forest products, over long distances. In 1996 approximately 4 million tons of products left Maine by rail while about 3.9 million tons came into the state. See charts entitled **Rail Shipments From / To Maine**.

Maine is served by three regional railroads: the St. Lawrence & Atlantic, the Guilford Rail System, and the Bangor & Aroostook System. All three rail lines have connections with large national carriers, called Class I railroads. The St. Lawrence & Atlantic Railroad, which operates 82 miles of track between Portland and Gilead, is affiliated with Canadian National (CN). The Bangor & Aroostook Railroad, owned by Iron Road Railways (IRR), operates on 367 miles of track between Searsport and Fort Kent. IRR also owns the Canadian American Railroad and is connected to the Canadian Pacific (CP) rail system. Both the St. Lawrence & Atlantic and the Bangor & Aroostook have excellent connections to Montreal and Chicago. Lastly, Guilford Rail is connected to the former Conrail system and runs on 343 miles from Berwick to Mattawamkeag in Northern Maine.

St. Lawrence & Atlantic Railroad has double stack clearance from their Auburn facility to Vancouver, BC. Bangor and Aroostook Railroad has double stack clearance from Brownville to Montreal, PQ. The Guilford rail line from Waterville to the New Hampshire border has seven bridges with substandard clearances for double stack trains.



The Conrail system is currently being bought by two other major Class I railroads: CSX and Norfolk Southern. Canadian National Railroad is also in the process of merging with the Illinois Central Railroad. Both of these rail system changes will improve access to New England markets.

In recent years, truck/rail intermodal facilities have been constructed in Auburn and Waterville which effectively serve Midwestern and Canadian markets for Maine businesses. Bangor/Hermon has also added a third site for intermodal traffic. These facilities are growing and currently move about 30,000 truck units per year. The MDOT is also actively working to upgrade and install industrial sidings off the main rail lines, improve safety at highway-rail crossings, and open new rail choices for shippers, through the recently created Industrial Rail Access Program (IRAP).

MDOT has also been aggressive in purchasing abandoned railroad right-of-ways for possible future use. The state owns 300 miles of railroad right-of-way, 90 of which are run by Safe Handling Railroad from Brunswick to Rockland and Augusta. The Belfast and Moosehead Lake Railroad also operates on 30 miles of MDOT owned right-of-way between Belfast and Burnham. The Calais Branch, which runs 127 miles from Brewer to Calais, the 40 miles of the Mountain Division line from Windham to Fryeburg, and 10 miles of the Lewiston Lower Road line from Brunswick to Lisbon, are all owned by the state. MDOT is continuing efforts to bring a short-line operator onto the Calais Branch and will also continue to evaluate the purchase of abandoned rail lines for economic development and public use initiatives.

Reload Facility in Waterville, Maine



Track conditions vary throughout the state, and within each individual railroad's system. Track conditions are defined according to Federal Railroad Administration (FRA) Track Safety Standards, found at 49 CFR Part 213. FRA standards rate track in classes beginning with "Excepted" and then Class I through Class VI. Class I permits maximum freight train speeds of 10 mph, and maximum passenger train speeds of 15 mph. Speeds increase as the class of track rises, reaching maximum speeds of 110 mph for both freight and passenger trains on Class VI conditions. "Excepted" track has a maximum freight train speed of 10 mph, passenger trains cannot operate, and the operating railroad is not required to conduct maintenance activities on the line except for inspections.

State-owned lines maintained by Maine Coast Railroad and Belfast & Moosehead Lake Railroad are operated at a combination of Class I and Class II conditions. The Bangor and Aroostook System (Searsport to Van Buren, Brownville to Quebec border, plus branches) is maintained and operated at Class I to Class IV track safety conditions. The Eastern Maine Railway (Brownville to Vanceboro) is maintained between Class II and Class IV conditions.

The Guilford Rail System (Berwick to Mattawamkaeg plus branches) is maintained between “excepted” and Class IV conditions. St. Lawrence & Atlantic Railroad (Portland to Gilead) is maintained and operated between Class II and Class IV.

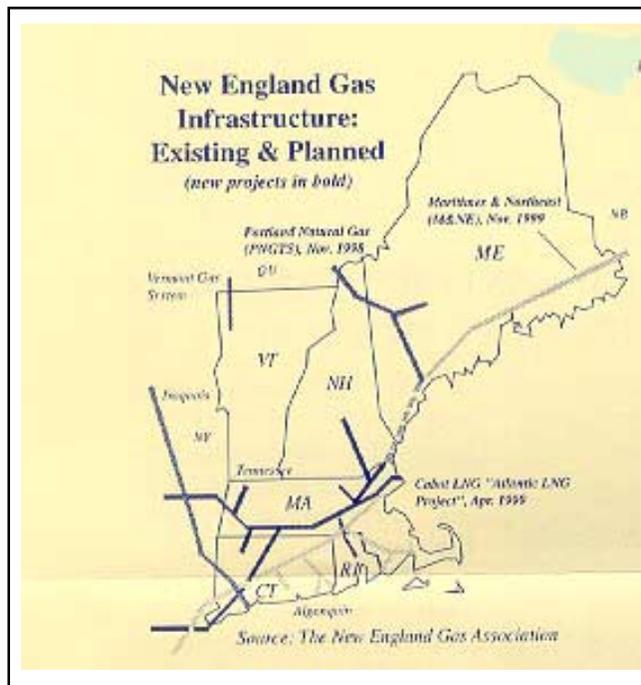
2.4.4 Pipelines

An important part of the freight transportation system is the network of pipelines. A 500 mile network of natural gas pipelines connecting Maine to the national grid was constructed in 1999. These pipelines run from the western New Hampshire border and Washington County to York County. They are being constructed by Maritimes and Northeast Pipeline Project and Portland Natural Gas Transmission system. The recent introduction of the natural gas pipelines will also create a transportation modal shift as the energy market adjusts. Maine also has two major petroleum pipelines: from Montreal to Portland and from Searsport to Bangor. These pipelines currently provide valuable infrastructure for the Maine energy distribution system.

2.4.5 Air Freight

Air freight is relatively small tonnage-wise, but an economically important component of Maine freight transportation that is growing rapidly. Air freight fulfills the needs of the growing service sector of our economy: the transportation of small, lightweight goods, higher in value and time sensitive.

Air freight in Maine moves primarily through the Portland International Jetport and the Bangor International Airport. These airports are well positioned to expand in response to growing air cargo demands by Maine shippers. Although northern and rural Maine are not conveniently served by air freight and the Portland Jetport does not handle exports, air freight shipments are currently growing about 9% annually in Portland and are relatively stable in Bangor. The Auburn and Waterville airports have been designated as regional economic development airports, along with eleven other airports around the state that have the opportunity to serve as air freight hubs for their regions in the future.



3.0 Getting There

This chapter is about action - the steps MDOT plans to take to accomplish the goals outlined in Chapter 1 and to meet the needs discussed in Chapter 2. While the actions listed below are grouped according to modal categories, the emphasis over the next 20 years will be to achieve the proper balance among modes and facilitate intermodal transfers. The focus will be on strengthening the connections between the various modal choices in such a way as to facilitate the movement of people and products using the most efficient and effective mode.

From the users' perspective our transportation system is characterized by freedom of choice - individuals make the decisions about how to get themselves or their cargo from point A to point B based upon their own analysis of the infrastructure's strengths and limitations. By working to provide robust and highly visible connecting points among the various modal options, MDOT can create an atmosphere where market forces will optimize modal balance.

The transportation goals listed in Chapter 1 are the basis for the policies and actions listed below. Where specific goals are addressed they are printed in **BOLD TEXT**.

3.1 Highway Preservation and Improvement

Highways are the foundation of a modern intermodal transportation network and are essential to promote **ECONOMIC VITALITY**. Not only do highways carry automobile traffic, but they are essential in the transportation of goods and services and they support alternative forms of transportation such as urban and intercity buses, carpools, vanpools, bicycle and pedestrian travel. Highways also provide the critical link between cities, towns, and other statewide destinations. As a result, highways must be maintained and improved for multiple uses for the mobility network to function efficiently.



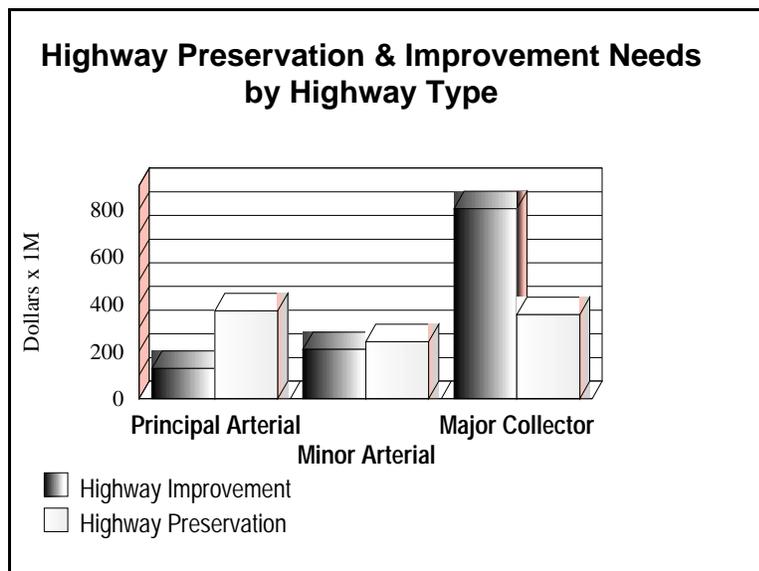
3.1.1 Highway System Goals

As MDOT works to improve **SYSTEM MANAGEMENT**, preservation and improvement of Maine's existing highway system will become a major challenge in the future due to funding constraints. It is estimated that over the next 20 years more than \$1.9 billion will be needed to meet highway preservation and improvement needs. In Maine, congestion is not the major force driving the need for highway investment. Therefore, this estimate does not include costs associated with major construction or capacity improvements that may be required to address congestion and growth-related needs.

Regional Transportation Advisory Committee (RTAC) representatives recommend the preservation, reconstruction, maintenance and efficient use of the State's existing highways and bridges before adding new capacity or enhancements. RTAC 4 recommends adoption of a paving and reconstruction strategy for non-NHS roads and suggests a series of prioritization criteria for reconstruction requests. RTAC 5 suggests that MDOT investigate various alternative solutions to improve safety and efficiency, and reduce traffic congestion on Route 1. RTAC 7 recommends that portions of Routes 2, 4, and 26 be reconstructed to meet federal highway standards.

Most of the RTACs recommend the consideration and preservation of community character while providing safe, efficient traffic flow. In response, MDOT will consider a variety of options for highway preservation and improvement.

A comprehensive evaluation of the existing highway system identified over 4,300 miles of principal arterial, minor arterial, and major collector highways in the state that have been built to federal and state standards. These highways represent a significant investment. It would cost nearly 3 billion dollars to replace this asset today. In keeping with the principals of **SYSTEM MANAGEMENT**, to preserve these highways it is necessary to maintain them properly and resurface them before significant damage occurs due to traffic and environmental factors such as freezing and thawing. With preservation treatments lasting 10 to 14 years, it is necessary to preserve about 475 miles biennially at a cost of over \$107 million dollars.



There are roughly 2300 miles principal arterial, minor arterial, and major collector highways identified for major improvement because they fail to meet structural or safety requirements. The cost to improve these highways is estimated to be just under \$1.2 billion. In addition, there are 1700 miles of minor collector backlog, which would cost \$360 million to address.

There are a total of 2220 miles of minor collectors, including the backlog mileage, which need to be maintained. These highways, like the major improvement candidates, need frequent

resurfacing to remain serviceable until they can be scheduled for long-term improvements.

The Maine Municipal Association and MDOT worked for the past two years to develop the new Rural Road Initiative to replace the CRDA program. *The Rural Road Initiative entirely removes any municipal capital responsibility for major collector highways, effectively relieving towns of \$90 million in match requirements, but retains municipal cost sharing for capital work on minor collector highways.* The Legislature passed the Rural Road Initiative in 1999 after extensive consideration by the Transportation Committee and after extensive municipal outreach

by MMA and MDOT. In addition to addressing minor collector highway reconstruction, the Rural Road Initiative also:

- *increases funding for municipal road assistance by \$3.5 million per year;*
- *created an indexing mechanism for automatic growth in municipal road assistance in the future;*
- *raised \$21.75 million for investments in major collector highway corridors in the FY2000-2001 BTIP with no municipal match requirements saving towns \$5M in that biennium alone.*
- *waived CRDA matches for planned or executed major collector projects, amounting to tens of thousands of dollars of savings for certain towns*

3.1.1.1 Project Cost Saving Initiatives

Preservation and improvement of the existing highway system will become a challenge in

RTAC 4 encourages cooperative efforts between state and local officials using cost-effective surface preservation and paving techniques.

the future as costs far exceed current funding levels. In response, the MDOT is implementing three new cost saving initiatives: a Pavement Preservation Program (PPP) to address roads that have been built to standards, a Highway Improvement Program (HIP) to address the substandard roads, and a Collector Highway Improvement Program (CHIP) to specifically address improvements on major collector highways. The intent of these programs is to improve the highway system with methods that are less costly, thus increasing the amount of miles improved with the same financial resources. Reduction of environmental impacts are also stressed. All of these programs further the goals of **SYSTEM MANAGEMENT** and **ENVIRONMENTAL PROTECTION** while promoting **ECONOMIC VITALITY**.

The PPP treats the pavement of structurally adequate, or “built” roads at appropriate times in an effort to preserve the integrity of the structure. Three levels of improvement are used, depending on the condition of the facility. A *Level 1* improvement concentrates on the pavement surface and guardrail between the shoulder berms. A *Level 2* improvement includes the *Level 1* type work plus maintenance of ditching and replacement of drainage structures. A *Level 3* improvement can involve creation of ditches, minor right-of-way improvements, rebasing of shoulders and even rebasing short sections of the travel way.

The Highway Improvement Program (HIP) includes more intensive treatments and usually involves earthwork, up to and including reconstruction. Prior to HIP, full reconstruction was the method most often used to improve a structurally or functionally inadequate highway. The HIP will implement methods to incorporate, within the same project, alternate scopes of reconstruction as a method of highway improvement. Locations will be reviewed to determine the cause of failure and thus which feature(s) require improvement. Field investigations, historical information, and technical evaluations will identify reasons for failure and help determine recommendations for improvement while taking advantage of existing materials and alignment. Alternative treatments to full reconstruction will be used when appropriate in order to reduce cost while assuring the overall improvement lasts the anticipated design life. All these

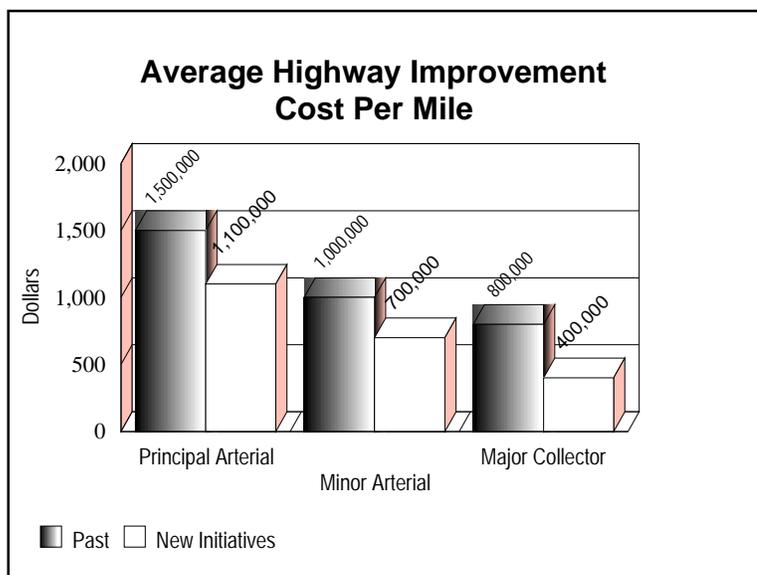
actions taken together pursue **ENVIRONMENTAL PROTECTION** by minimizing unnecessary impacts.

Major collector roadways have traditionally received minimal construction dollars, and many of their unimproved miles are posted for weight limitations during the spring. The CHIP would improve these highways through reclamation, variable gravel and other innovative means of utilizing existing materials and alignment. The objectives of the program:

- A safe, smooth highway
- A 12 - 15 year pavement design life
- No significant changes in vertical or horizontal alignment
- Avoiding right-of-way and environmental impacts
- Eliminating spring weight posting
- Applying state standards for lane widths

A model has been developed with an average cost of \$400,000 per mile. When equating this to the cost of traditional treatments it will allow twice as many miles to be improved for the same dollar while meeting the objectives for the major collector corridors.

A comparison of average highway improvement costs expected under the Highway Improvement Program and Collector Highway Improvement Program initiatives with those experienced under past practices is presented in the chart entitled **Average Highway Improvement Cost Per Mile**.



3.1.1.2 Highway Improvement Strategy

There is a significant backlog of roads in Maine that have not been constructed to modern standards. These roads impair **GLOBAL COMPETITIVENESS** and stand in the way of **IMPROVED ACCESS & MOBILITY**. A strategy for addressing this substantial backlog of highway reconstruction need has been developed with the assistance from each of the state’s seven RTAC regions. Key elements of this strategy include the following:

- *All deficient rural (principal and minor) arterials will be addressed within ten years.*
- *All deficient rural major collectors will be addressed within twenty years.*
- *Deficient minor collectors will be addressed in partnership with those municipalities raising the required one-third match.*

-
- *The Pavement Preservation Program will be extended to all urban arterials built to standard.*
 - *Built-to-standard rural major collectors will be reclaimed once every thirty to forty years in concert with Major Collector corridor improvements.*

This strategy reflects recently approved legislative funding programs. The Legislature has committed funds over the next five bienniums to eliminate deficiencies on the roughly 300 miles of remaining substandard rural arterials. In addition, MDOT's strategy reflects legislative intent for the Minor Collector roadway system as outlined by the Rural Road Initiative. This program consists of a 66.6% contribution from the State, and a 33.3% municipal contribution. For the next six years, it is proposed that a total of \$6 million per year in State funding be committed to this program.

MDOT has revised the rural Major Collector program, allowing for a twenty-year time frame to address the substandard mileage within this roadway system. The program emphasizes the programming of corridors rather than individual projects along a roadway. MDOT believes that a corridor-based approach will be the most effective method for efficiently improving this roadway system and for eliminating both backlog and seasonal posting.

3.1.2 System Expansion

As the Maine Department of Transportation looks toward the future and works to meet the goals of **IMPROVED ACCESS & MOBILITY**, improvements to existing highway facilities may not be sufficient to address system capacity deficiencies and meet growing transportation and economic needs. Planning studies for new or expanded highway facilities or transportation services should be considered. To determine the feasibility of such investments, the MDOT must not only identify the needs and deficiencies but also evaluate the impact and effectiveness of a range of investment options. These planning studies are guided by the spirit and intent of *TEA-21* and MDOT's Integrated Transportation Decisionmaking (ITD), the *National Environmental Policy Act (NEPA)*, Maine's *Sensible Transportation Policy Act (STPA)* and state and federal environmental permitting programs. Their aim is to evaluate all reasonable transportation alternatives before major investments are made in new facilities and services. The desired outcome of these studies is to develop an investment strategy that will give the greatest benefit to the people of Maine at the lowest financial and environmental cost. Once a major investment analysis is complete, the recommendations from the study may become prioritized improvements for the *6 Year Plan* and funded projects for the *Biennial Transportation Improvement Program (BTIP)*.

Planning studies may be anticipated in the following transportation corridors in the coming years.

- **Interstate Highway Corridors:** Several locations along the Interstate System may warrant new highway interchanges to improve regional access to these vital transportation corridors. A thorough analyses will help identify the most cost-effective alternative for improving access in each location.
- **Congested Highway Corridors:** Segments of I-95, I-295, and Routes 1, 201, and 302 and others are expected to become highly congested over the next 20 years. In each of these arterial corridor segments, a complete investment analysis can evaluate various options

for expanding transportation capacity or managing transportation demand, and help develop a multimodal strategy to manage growth in traffic congestion.

- Congested Urban Areas: Maine’s urban areas can expect increasing traffic congestion in the years ahead. Some of these areas may need expansion of the transportation system in the next 20 years. Planning studies in Augusta, Skowhegan, greater Portland area, and other locations will help identify effective strategies for dealing with urban congestion.

New Capacity:

Members in Regions 4 & 7 strongly expressed support for improvements to existing capacity before any new capacity is added.

RTAC 4 supports the construction of new Kennebec River Bridges in Augusta and Skowhegan, and the replacement of bridges in Fairfield and Benton.

RTAC 1 has expressed support for additional North-South capacity.

RTAC 5 has supported additional capacity when needed for congestion management.

- The East-West Highway Corridor: Improvements in highway access to states and provinces east and west of Maine is seen as an important economic development tool. An exhaustive analysis was completed in 1999 that evaluated an appropriate level of investment to improve this corridor and help to identify priority locations for major improvements. This study indicated that a major expansion of the roadway network to accommodate east/west travel movements would not significantly impact projected economic growth rates to justify the costs of these improvements. A continued emphasis on upgrading the existing roadway system was identified as the most effective strategy for addressing east/west transportation in Maine. This strategy is reflected in the Highway Improvement Strategy section of this document.

3.1.3 Safety

The goal of increasing SAFETY has long been central to MDOT’s mission. Both the national crash rate and Maine’s crash rate have shown a gradual decline over the past decade. However, Maine’s highway crash rate has maintained a level slightly above the national rate. As the economy continues to improve and motor vehicle usage continues to increase, this higher rate will likely continue unless a concerted effort is made to reduce it. MDOT will strive to reduce Maine’s crash rate to a level lower than the national average. More effort will be placed on utilizing a safety management approach to address all areas of transportation safety within the realm of MDOT responsibility. These safety management principles will include:

- integrated transportation safety information systems;
- a team approach from preliminary problem identification through construction;
- effective communication, cooperation, and coordination both within MDOT and with other local, county, state and federal safety agencies; and
- safety evaluations of completed projects in order to continuously improve our knowledge of what works best for given circumstances.

Safety improvements can best be accomplished by addressing the three areas that affect transportation safety: motor vehicles, physical attributes of the transportation system, and human factors.

*Safety initiatives are supported by many RTAC goals and strategies.
Region 2 RTAC members wish to ensure that the number, location and design of signs is compatible with safe travel, and that passing lanes are constructed where appropriate in locations other than hilly terrain.
RTACs 5 and 6 recommend the development of public education programs to promote safety.*

Motor vehicle manufacturers are expected to continue with vehicle safety improvements that will increase survivability and reduce the relative severity of crashes. MDOT will work with other local, county, state and federal safety agencies, and other transportation safety advocates to improve public awareness of the proper usage of safety equipment.

MDOT will continue to identify existing and potential safety problems on Maine’s roads and will address physical features that may contribute to the occurrence and severity of crashes. Particular emphasis will be placed in the categories where Maine exhibits higher crash occurrence levels. At present, these categories of special concern include ‘run off the road’ crashes and crashes with fixed objects.

Human factors, such as ‘road rage’, are expected to continue increasing as primary causes of crashes. MDOT needs to make certain that the general public is cognizant of safety issues and aware of the proper usage of the transportation system. To this end, MDOT will work with other state agencies and public safety advocates to achieve effective transportation safety advisories.

3.2 Bridge Rehabilitation and Replacement

The bridge rehabilitation and replacement plan focuses on a 20 year management strategy to monitor and predict the “backlog” of structurally deficient bridges, using a fact based approach. The current backlog of structurally deficient bridges is estimated at \$220 million. Over the next 20 years, the recommended average annual bridge investment is approximately \$40 million per year, plus an additional \$16 million per year for existing extraordinary bridges.

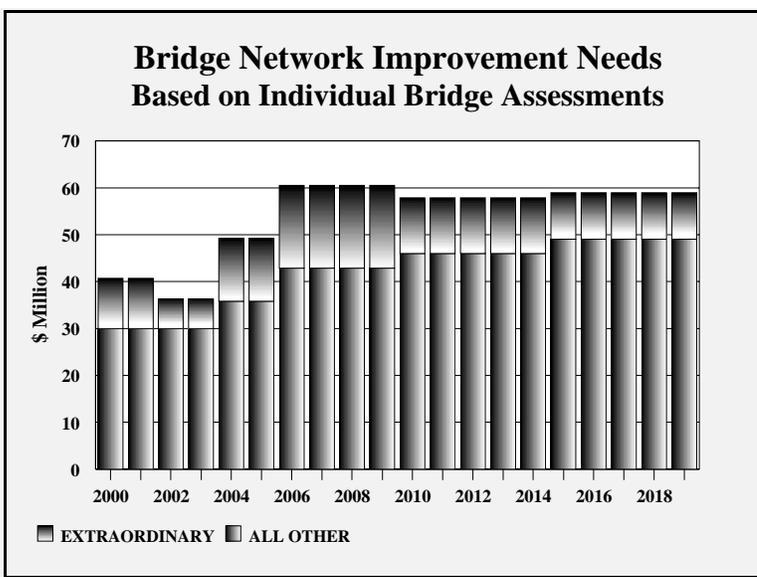
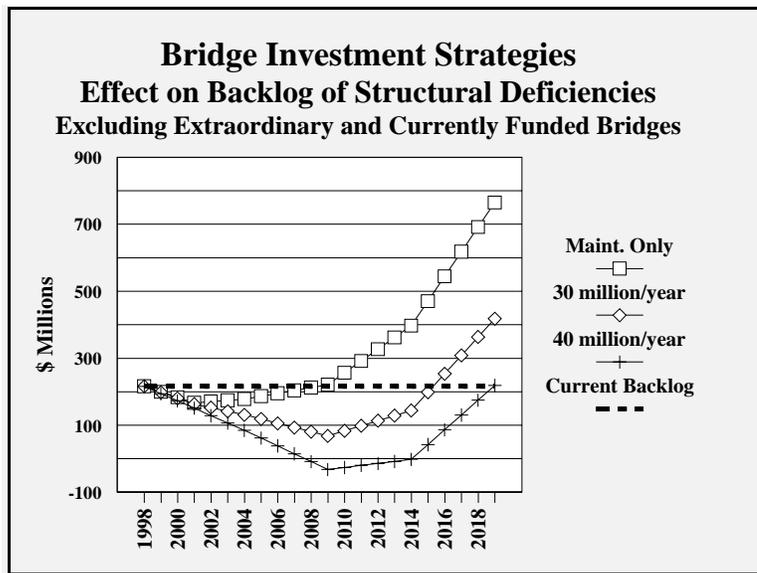
The effect of these funding levels can be measured by considering the impact on the network-wide backlog of structural deficiencies over time. This concept is demonstrated by the **Bridge Investment Strategies** chart, on the next page, which shows three investment strategies. The first strategy, performing only maintenance activities on the bridges and investing \$0 per year in improvements, would result in a total backlog in the year 2020 over \$800 million. The second strategy, investing \$30 million annually, would result in a total backlog at the end of the period exceeding \$400 million. By investing \$40 million per year, the recommended strategy, the backlog of unfunded improvements at the end of 20 years will approximately equal the amount at which it is now estimated: \$220 million.

The MDOT’s Bridge Management System used an objective methodology to generate Bridge Network Investment Needs and Bridge Investment Strategies. Using standardized inspection ratings and inventory data, improvement alternatives for all 3564 public highway bridges were individually evaluated for the greatest return on investment. An analysis of the benefit and cost of improvements to each public bridge over the next 20 years was performed, and the approximate timing for improvements within the 20 year horizon was forecast. The recommended annual funding level, including extraordinary bridges, is illustrated by the **Bridge Network Improvement Needs** chart, at right.

3.2.1 Extraordinary Bridges

Extraordinary bridges are structures with a length of 250 feet (76.2 m) or more and which have improvement costs equal to or exceeding \$5 million. Maine has 16 extraordinary bridges requiring some type of major capital improvement within the next 20 years. The **Extraordinary Bridge Needs** chart on the next page identifies \$224 million in needs associated with existing extraordinary bridges.

The challenge of meeting this enormous need can be met through funding capital improvements at a level of approximately \$16 million per year for the next 20 years.





Casco Bay Bridge (Portland - South Portland)

Extraordinary Bridge Needs

Town	Name	Age Years	Scope	Remaining Need \$ Millions
Augusta	Memorial	51	Improvement	13
Bath-Woolwich	Carlton Bridge	74	Rehabilitation	24
Bath	West Approach	42	Improvement	15
Brunswick-Topsham	Frank J. Wood	69	Improvement	9
Caribou	Aroostook River	48	Improvement	10
Deer Isle-Sedgwick	Deer Isle Sedgwick	61	Improvement	57
Fairfield-Benton	Kennebec River	66	Replacement	10
Fort Kent-New Brunswick	International	71	Improvement	4*
Howland	Penobscot River	54	Improvement	10
Howland	Piscataquis	72	Improvement	6
Jonesport-Beals	Beals Island	42	Improvement	13
Kittery-Portsmouth	Memorial Bridge	79	Rehabilitation	10*
Norridgewock	Covered	72	Improvement	7
Portland-Falmouth	Martin Point	57	Improvement	9
Prospect-Verona	Waldo Hancock	69	Rehabilitation	15
Richmond-Dresden	Maine Kennebec	70	Improvement	12
		Average Age: 62	Total Cost:	224

* Maine Share Only

3.3 System Management

With competition for highway improvement funds becoming more intense, system management must be employed to the maximum extent practical. Better management of existing resources can increase system capacity at a lower cost. It is important to note however, that improved infrastructure management generally does not eliminate the need for capital investment but can help defer that need when funding is inadequate. Three primary forms of infrastructure management need to be considered in this regard: transportation system management, travel demand management, and access management.

3.3.1 Transportation System Management

The concept of Transportation System Management (TSM) is to make more efficient use of the transportation systems already in place through low-cost actions that improve transportation service in the short term. It is imperative that better and more efficient uses for existing investments in the transportation infrastructure be found before additional investments are made in costly new facilities. Examples of TSM actions include: traffic signal improvements, one-way streets, removal of on-street parking, and traffic channelization. The use of TSM alternatives has played, and will continue to play, an important role in the Department's planning and project development decision making processes.

3.3.2 Travel Demand Management

Travel Demand Management (TDM) is defined as actions designed to change travel behavior to improve performance of transportation facilities, reducing the need for additional highway capacity. Methods include ridesharing, vanpooling, passenger transportation, and telecommuting. TDM is being successfully used in urban areas throughout the country to reduce congestion. Recent MDOT studies have identified the importance of managing demand on Maine's arterials. In rural areas, such as Maine, where congestion is sporadic, there is limited call for these programs. Success of these initiatives will depend upon offering attractive options to driving alone and a change in public attitude regarding the environmental, social, and economic impacts of driving.

Regional Transportation Advisory Committees discuss Travel Demand Management in the context of multimodalism and intermodalism. In general, RTACs support a variety of travel demand options although in varying degrees. Goals supporting connectivity between modes of travel and improved mobility options are discussed in each of the Regional Advisory Reports. Some RTACs stress the importance of enhanced economic growth and competitiveness resulting from an efficient and flexible transportation system while others recognize that enhanced mobility options assure access to employment, basic services, and recreation with less dependence on the automobile. MDOT supports these goals and encourages further RTAC input in this area.

The MDOT supports demand management through its passenger transportation programs, development and maintenance of park and ride lots, and funding for carpool and vanpool

programs in the Augusta and Portland areas. These programs are discussed in more detail in the “Passenger Transportation” section of this chapter.

3.3.2.1 Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) are the application of advanced sensor, computer, electronics, and communications technologies and management strategies, in an integrated manner, providing traveler information to increase the safety and efficiency of the surface transportation system. ITS offers promising tools to address transportation demand challenges. There are three major ITS areas: multimodal travel management and traveler information, commercial vehicle operations, and advanced vehicle control and safety systems. The Department has been actively pursuing and deploying Intelligent Transportation Systems (ITS) over the past year. In addition, the Maine Turnpike Authority (MTA) and the Greater Portland Council of Governments (GPCOG) have deployed ITS and have developed strategies to further deploy ITS in their jurisdictions. The State of Maine recognizes the potential economic benefits of ITS technologies and will develop a statewide ITS architecture and integration strategy. This will “bring together” current and future deployments, while providing for a statewide ITS strategy. There is still a need to institutionalize ITS into the State’s planning process. Furthermore, federal proposed rulemaking requires an ITS integration strategy, and conformity with the national ITS architecture and standards.

Potential ITS applications in Maine include:

- Technologies to improve traveler safety and security such as in-vehicle sensors and information systems to alert drivers to hazardous conditions.
- Advanced communications to automatically notify the nearest emergency service providers of your exact location.
- Pre-trip and enroute systems to provide information to travelers who are unfamiliar with the local area.
- Improved efficiency of public traveler and mobility services using enhanced scheduling and dispatching and smart cards.
- Technologies to improve efficiency of rural vehicle fleets such as Global Positioning Systems and onboard monitoring equipment.
- Technologies to better manage the movement and logistics of commercial vehicles.
- A Road Weather Information Systems (RWIS) network will allow the Department to more effectively predict incoming storms and to provide more timely and cost effective responses to snow and ice control needs.

The MDOT supports the implementation of Intelligent Transportation Systems which can address some of Maine’s transportation issues and recognizes that ITS must be an integral part of transportation systems planning, design, and operations.

3.3.3 Access Management

Access management, a technique used to optimize mobility and ensure safety, is discussed in the Land Use section of the plan.

3.4 Passenger Transportation

Passenger transportation can help to meet many of Maine’s mobility needs. This will require new approaches to providing passenger transportation that reflect Maine’s changing demographics, economy, and land use patterns. The MDOT has a number of planning initiatives underway for the provision of innovative passenger transportation.

3.4.1 Explore Maine

In 1996 the Office of Passenger Transportation began development of *Explore Maine*, described in Chapter 2. Currently the MDOT has begun the first phase of the plan, focusing on the congested Route 1 corridor from Portland to Bar Harbor. The plan will provide an opportunity to test the feasibility and utility of many public transportation initiatives. Among the initiatives underway or planned are:

- waterfront studies to identify interim and long term shore side infrastructure investment needs for the Marine Highway
- the Portland Cargo and Passenger Study calls for the consolidation of terminals on the Portland waterfront
- Rockland Branch upgrade
- a study by Maine Maritime Academy to evaluate the impacts of high speed ferries
- a marketing plan by the Office of Tourism to promote *Explore Maine*
- a Memorandum of Understanding between the MDOT, Acadia National Park, and interested groups to reduce congestion in the Park, resulting in the successful Island Explorer transit system
- implementation of ITS technology, beginning with Acadia National Park
- a study to find ways to link the Jetport, transit providers, and other key locations in Portland
- work with the RTACs to identify future opportunities for alternative modes.

These planning efforts will identify future MDOT investments and programs.

RTACs 3 and 4 recommend extending passenger rail north of Augusta. Once passenger rail service is reestablished between Portland and Boston future extensions will be analyzed and implemented wherever economically viable.

3.4.2 Aviation

The *Maine State Aviation Systems Plan* is used to guide 20 year growth of Maine’s aviation system. Over the next twenty years new aviation developments will improve access to Maine. These include new aircraft, improved weather observation, and anticipated growth at the three primary airports in Portland, Bangor, and Presque Isle. The Plan’s primary goals to meet these changes are:

- increase access to under served areas
- support economic development airports
- provide all weather coverage
- ensure adequate access to commercial service providers
- promote public support for the aviation community
- take advantage of airport facilities to promote intermodal connectivity.

Two broad categories of aviation needs were identified in Chapter 2, service improvements and facility needs. Actions the MDOT will undertake over the next twenty years to address service needs are:

- supporting expansion of jet service to the state
- opposing Massport peak hour pricing proposal
- support of the *Air Service Improvement Act*

RTAC 3 wishes to protect the availability and affordability of the air transportation system. RTAC 4 members wish to improve passenger air service through scheduled service within the region or via quality scheduled surface linkages to the state hubs in Bangor and Portland. RTAC 7 is interested in improving and expanding the region’s air service.

- work with airlines to improve service opportunities in Maine
- work to ensure the availability of gates for expansion at existing hubs that serve Maine
- investigate the feasibility of a new airport in the Western Mountain Region.

To address facility needs the following strategies and projects will be implemented as funding becomes available:

- assist airports in meeting requirements for economic development designation
- implement a runway pavement management program
- runway reconstruction and rehabilitation
- terminal expansion
- expand cargo and freight facilities and warehouses
- increase parking capacity
- develop intermodal facilities at major airports
- make improvements at general service airports to accept new technology, including obstruction removal and improved weather reporting
- increase instrument landing capabilities
- investigate the possibilities of intermodal facilities at Auburn/Lewiston, Bangor, Portland, Presque Isle, and Trenton airports.

3.4.3 *Park & Ride Program*

To better manage the increased demand for, and limited resources dedicated to, park and ride lot expansion, the MDOT is developing a new park and ride prioritization program. All documented needs will be prioritized using set criteria and underutilized lots will be discontinued. Opportunities for development of lots in conjunction with highway projects will be encouraged to maximize resources.

3.4.4 *Vanpool/Rideshare Program*

The MDOT Vanpool and Rideshare programs are being monitored and will be expanded as warranted.

3.4.5 *Fixed Route and Demand Response Transit Services Plans*

The state has developed and periodically updates two plans that govern the operation of the fixed route and demand response transit service in the State of Maine. These are the *State Management Plan* and the *Biennial Operations Plan*. In addition two new planning initiatives to identify needs, The Urban Transit Needs Study and The Rural Transit Needs Study, have also begun.

RTACs 1, 3, 5, 6, 7 have all expressed desires for an affordable transit service designed to meet needs of all segments of the population.

The State Management Plan: this Plan's primary objective is to improve the mobility of Maine citizens including elderly, low income and disabled persons in rural and small urban areas of the state. The plan further defines roles and responsibilities of various funding agencies. It sets forth eligibility criteria for recipients; identifies eligible service and service areas and establishes project evaluation criteria and a method for distribution of funds.

The Biennial Operations Plan: this plan has four goals:

- maximize coordination of funds from all state agencies
- outline procedures for the development and maintenance of a permanent and effective public transportation system, with particular regard to low income elderly and handicapped residents
- involve private transit operators
- conform with general operations prescribed by the Commissioner.

To comply with the above provisions, each transportation provider is required to submit a detailed project description for their service area including project coordination plans, a biennial budget, and fleet condition report; with supplemental information submitted when major changes occur. This plan provides a vehicle for the state to collect relevant operations data from the providers. It is also an opportunity for providers to reevaluate their current services and to identify coordination issues.

Transit Needs Studies: Changing demographics, development patterns, and economic activities create new transportation demands. The MDOT recognizes the need to reevaluate current public transportation services to ensure that they meet current and future needs. The MDOT is undertaking two needs assessment studies focusing on rural and urban transportation

services. These studies will identify opportunities to integrate these services into the developing multimodal transportation system with the goals of increasing efficiency and ridership.

In addition, the MDOT is shifting its capital programs to promote clean fuel technologies. Based upon the experiences with alternative fuels vehicles in Portland and Bar Harbor, the MDOT will collaborate with transit providers to adapt their fleets and facilities.

The MDOT will be taking the following actions to improve the fixed route and demand response transit service in the state.

- Develop feeder services and intracity/intercity connections to the transportation infrastructure created by the implementation of recommendations from *Explore Maine*.
- Continue to work closely with the Department of Human Services, and the Department of Mental Health, Mental Retardation and Substance Abuse, as well as the Departments of Education, and Labor to coordinate use of transportation funds to maximize the provision of service to the citizens of the state.
- Investigate the potential for increased nonfederal funding sources for public transportation.
- Complete the development of a public transportation management system to assist in the identification and prioritization of capital needs for public transportation.
- Work with transportation providers to convert their fleets to clean fueled vehicles.

3.4.6 Maine State Ferry Service Plan

In 1996, the Maine State Ferry Service (MSFS) *Strategic Plan* was developed by MDOT staff and the MSFS Advisory Board. This document identifies six goals regarding user friendly service, maintenance, funding, employee training and relations, and management with citizen's input. Numerous objectives and strategies are proposed to be carried out over five years that will address many of the existing and projected issues facing the MSFS. Committees have been formed by the MSFS Advisory Board and are actively carrying out the Plan's strategies. An annual work plan will focus on issues identified in the MSFS *Strategic Plan*.

RTAC 5 suggests MDOT encourage private ferry systems to connect communities as part of a tourist promotion program.

3.4.7 Bicycle/Pedestrian Plan

Many municipalities and bicyclists have requested paved shoulders on certain State highways to provide a safer space on the public roads for bicyclists and walkers. In the autumn of 1999 each RTAC formed its own Bicycle Subcommittee that was charged with the specific task of developing a Regional Bicycle Plan that would prioritize shoulder paving needs on the region's highways. In January, 2000, MDOT approved a new "Shoulder Surface Type Policy" that describes the criteria needed for a highway to receive a paved shoulder. This new policy, in conjunction with the Regional Bicycle Plan, will be used to determine future shoulder paving needs.

Municipal Bicycle/Pedestrian Projects

Federal Enhancement funds are made available to the State through TEA-21, the Transportation Equity Act for the Twenty First Century, for the improvement of bicycling and walking facilities. Typically funded projects include construction of new shared use paths, bike lane development, and trail feasibility studies. Municipalities are invited to apply for Enhancement funding every two years. Projects that meet the greatest needs are selected for the BTIP.

3.4.7.1 Trails:

The MDOT's three trail strategy will create an integrated bicycle and pedestrian trail system that will not only connect Maine with national and international trails, but also provide opportunities for connectivity with other passenger transportation modes.

3.4.8 Interconnections

As discussed in Chapter 2, the success of an intermodal system depends upon passengers being able to move easily between modes. The MDOT has many planning projects underway or scheduled that will help ensure the provision of 'seamless' transportation. These include:

- a study of opportunities to link transportation terminals and travelers' destinations in Greater Portland and Bangor
- opportunities for connections with rural and urban transit systems
- the use of smart card and other ITS technologies
- coordinated marketing
- consolidation of stations and terminals
- development of intermodal hubs at major airports.

Passenger transportation, the movement of people by any means other than low occupancy automobiles, can help to meet many of Maine's mobility needs. This will require new approaches to providing passenger transportation that reflect Maine's changing demographics, economy, and land use patterns. The MDOT has a number of planning initiatives underway for the provision of innovative passenger transportation. Actions to improve facilities and infrastructure for passengers is consistent with the goals of **IMPROVED ACCESS & MOBILITY, ENVIRONMENTAL PROTECTION, SYSTEM PRESERVATION, and IMPROVED SYSTEM EFFICIENCY.**

3.5 Freight Transportation

MDOT, through the activities of its Office of Freight Transportation (OFT), is working to develop a more efficient and free-flowing multimodal freight system for the state. This system provides and will continue to provide Maine shippers with more choices among modes, thereby increasing shipper productivity, safeguarding the environment, and reducing transportation costs. These activities are in direct pursuit of the goal of increasing **GLOBAL COMPETITIVENESS**, but will also result in **IMPROVED ACCESS & MOBILITY, ENVIRONMENTAL PROTECTION, SYSTEM PRESERVATION, INCREASED SAFETY, and IMPROVED SYSTEM EFFICIENCY.**

The Freight Transportation Advisory Committee was formed in 1996 to advise OFT on major policy issues. The Committee is made up of Maine freight transportation industry leaders. One of the first actions by the Freight Transportation Advisory Committee was to accept a proposal from the OFT to develop an *Integrated Freight Plan (IFP)* for the State of Maine. The purpose of the IFP is to inventory the current freight transportation network, identify both major and minor shortcomings of the current transportation network, determine a methodology for assessing project benefits weighted against costs, develop a policy for addressing potential public-private investments, and target projects. The OFT undertook this effort with a market-based approach which viewed Maine businesses as customers of the transportation system. OFT staff conducted about 80 personal interviews with select individuals representing business, economic development, special interests, and state and local governments. Large scale data collection was also undertaken to get a sample of 320 of the State's major producers of freight as well as its transportation providers.

MDOT's freight goals are promoted by RTAC members, who champion economic development while being concerned about the high public cost of highway repairs directly attributable to truck traffic.

OFT's *Integrated Freight Plan* research has developed a number of motor carrier objectives. These include:

- reducing congestion on the Maine Turnpike
- designating and publishing heavy truck routes
- managing the Department's response to the upcoming *Federal Truck Size and Weight Study* and
- improving border crossings
- building more truck rest areas across the state.

In Regions 4 and 5, there is concern over the truck weight issue as it affects safety, congestion and wear and tear on local roads. RTAC 4 recommended an economic impact analysis on the relative costs and benefits of a reduction in truck weights on state roads.

The *Integrated Freight Plan* also recommends that MDOT invest in Intelligent Transportation Systems-Commercial Vehicle Operations (ITS-CVO) technology to expedite inspections and clearances for trucks. OFT is working with other appropriate state agencies, the Federal Highway Administration, and the private sector on ITS-CVO projects which will improve the efficiency of roadside commercial vehicle enforcement while reducing shipper delays through more efficient screening processes. One ITS project, a commercial vehicle data mapping project in Maine state government will pave the way for a computerized system which will enable enforcement officers in the field to access necessary safety and weight compliance data quickly, thereby clearing vehicles more rapidly. This system will allow the state to connect with regional and national motor carrier data bases, and thus, greatly improve commercial vehicle enforcement.

Regarding rail transportation, OFT will be implementing a number of initiatives resulting from the research. OFT is carrying out the Three Rail Carrier Strategy, which sets a policy of 50/50 public private funding for certain rail projects. OFT is looking for projects to provide increased competition and inter-connectivity. It is also advocating for the replacement of Conrail with two Class I carriers to serve the New England markets. The Office of Freight Transportation will also work to preserve rail corridors and eliminate deficient clearances for future use.

The RTAC members in Region 3 support the increased use of rail to benefit from rail's energy efficiency, low air emissions and existing excess capacity. Region 5 members recommend that MDOT upgrade rail trackage in the region and study ways to increase the use of these tracks. Region 4 members encourage the shifting of freight traffic from highway to rail, with particular attention to wood products. Its members, along with Region 7 members, also urge the MDOT to continue working with private rail carriers to improve track conditions, rail safety and service standards. Rail corridor preservation is a goal in a number of regions. These goals are reflected in the OFT's Freight Plan.

OFT is working with the Office of Passenger Transportation and the Bureau of Maintenance & Operations to upgrade trackage on the Rockland Branch. Additional intermodal facilities and industrial rail sidings will be built under the Industrial Rail Access Program to help give Maine shippers more choices when transporting their products. Increased focus on rail maintenance and track upgrades will help ensure the safety and reliability of Maine's rail system for years to come.

Air freight is expected to grow in both Portland and Bangor. OFT is recommending increasing the marketing of the Bangor International Airport as a regional air freight facility for Northern and Eastern Maine.

RTAC 1 supports the goal of improving and promoting air freight and passenger transportation facilities.

Goals for cargo port development include reestablishing the Maine Port Authority to finance more public-private projects and to manage publicly owned port facilities. Also, over the next 20 years, OFT will continue to implement the Three Port Strategy and attempt to secure container feeder service at all three major ports with better liner service and improved intermodal connections at each port.

OFT will focus in the coming years on expanding the Port of Eastport's market for the new deep water terminal at Estes Head. It will also focus on rehabilitation of Searsport's marine infrastructure and intermodal connections. For Portland, improving the terminals and developing the I-295 waterfront access project are top priorities. The OFT is also working on the Small Harbor Improvement Program (SHIP), and has recently taken over the State's responsibility for prioritizing maintenance dredging and licensing of commercial marine harbor and docking pilots.

3.6 Maintenance and Operations Environmental Programs

MDOT's Bureau of Maintenance & Operations traditional role has been to work towards the goals of **SYSTEM PRESERVATION** and **INCREASED SAFETY**. Recent efforts have been focused to increase **INTERGOVERNMENTAL COORDINATION** and **ENVIRONMENTAL PROTECTION**, with highway maintenance and operation initiatives addressing water quality considerations which include sand/salt storage buildings, installation of floor drains, and proper storage of hazardous waste. M&O will continue its efforts at minimizing the impacts of its operations on water quality.

3.7 Land Use, Economic & Community Development

Section 3F of *STPA* requires that transportation planning decisions, capital investment decisions and project decisions “Be consistent with the purposes, goals and policies of the *Comprehensive Planning and Land Use Regulation Act*”. This broad mandate has had a significant impact on the way transportation planning and project implementation decisions are made. For example, RTAC corridor prioritization processes involve the use of regional importance criteria. One such criterion seeks consistency between planned improvements to the corridor and the affected municipality(ies)'s comprehensive plan. Those municipalities with comprehensive plans are awarded more points by the RTACs for planning than those municipalities which have not planned. This effort, and those outlined below, work toward greater **INTERGOVERNMENTAL COORDINATION**.

In addition, the MDOT is developing ITD, which streamlines the environmental and planning decision-making processes. The term “environmental” in this instance implies the broadest possible definition as is required in NEPA, STPA, and state and federal permitting programs. NEPA and STPA rely heavily on local land use policy as a driving force for making balanced decisions for transportation improvement.

MDOT will strengthen and expand the integration of land use and transportation planning by developing a statewide access management program, and by implementing Scenic Byways, Heritage Roads and Community Gateways programs. In addition, MDOT will pursue increased coordination with the State Planning Office, other state agencies, Regional Planning Agencies, RTACs and municipalities to assure its programs and policies are consistent with the *Comprehensive Planning and Land Use Regulation Act*. Finally, in recognition of the transportation impacts on community character, MDOT will respond to community vision by establishing a series of context sensitive design standards while maintaining transportation safety and function. All of these initiatives, and others, are intended to assist MDOT in strengthening its relationship with municipalities.

3.7.1 Access Management

Access management is a Transportation System Management (TSM) technique that deserves special and distinct attention separate from other such techniques. Access management is the one TSM technique that links most closely with land use and often inspires controversy due to its relationship to abutting, usually private, property. While other TSM techniques clearly take place in/on the street, access management most often occurs at or near the boundary between public and private land. This natural relationship is viewed as an opportunity for MDOT to pursue coordination of transportation investment decisions with land development practices.

Highways perform the dual function of enabling mobility and providing access to adjacent land uses. As traffic volumes grow and adjoining land is developed, there is a natural conflict between these two transportation objectives. Uncontrolled access along our major transportation routes leads to a breakdown in their ability to provide regional mobility and safe operation.

Access management can be defined as the process that provides or manages access to private property, while simultaneously preserving the flow of traffic on the adjacent road system. It involves management of the number, location, design, and operation of driveways, median openings, and street connections to a roadway. There are many benefits to be realized from the effective application of access management techniques:

- It preserves highway capacity
- It improves highway safety
- It saves tax dollars
- It encourages the orderly development of land
- It offers aesthetic benefits

The problems associated with uncontrolled access are broadly recognized throughout the state and the need to establish a statewide access management program relative to the state's

Region 2 members express interest in use of measures that limit the traffic and aesthetic impacts of strip development. RTAC 4 members are committed to alleviating highway congestion on a case-by-case basis through system management techniques. RTAC 5 members recognize the need for use of access management techniques along arterials. RTAC 6 and 7 both view the need for integrating land use management techniques with transportation planning. RTAC 6 recommends amendment to the driveway permit law.

arterial highways has been widely promoted. Such a program is desirable, not only from the standpoint of the previously noted benefits, but because it would provide the means to preserve transportation corridors and forestall the need for new and expanded highway corridors.

The MDOT currently operates under the jurisdiction of Title 23 MRSA Section 704 which requires access permits on any state or state aid highway outside the urban compact area. MDOT cannot deny reasonable access to property abutting the highway except on limited access highways. The law currently authorizes MDOT and municipalities to develop appropriate rules and regulations to regulate the number, design, construction, spacing and width of driveways to “adequately protect and promote the safety of the traveling public.” MDOT driveway permits do not override local ordinance requirements.

The 119th Maine Legislature recently approved LD 2550, An Act to Ensure Cost Effective and Safe Highways in Maine. The purpose of the act is to assure the safety of the traveling public and protect highways against negative impacts of unmanaged drainage. The law is intended to conserve state highway investment, enhance productivity, manage highway capacity, maintain rural arterial speed, promote safety and conserve air, water and land resources. The Access Management Program for Maine includes access management rules, access acquisition, and corridor planning.

The Act specifically directs MDOT and authorizes municipalities to promulgate rules to assure safety and proper drainage on all state and state aid highways with a focus on maintaining

posted speeds on rural arterial highways. The law also requires that the rules consider standards for avoidance, minimization, and mitigation along the portions of rural arterials where the 1999 statewide average for driveway related crash rates is exceeded. The rulemaking process is currently underway and will be reported on in the First Regular Session of the 120th Legislature in 2001. The rules are to be developed with a hierarchy of protections providing for the strictest measures being applied to those rural corridors considered most unsafe.

Access management rules are viewed as only one part of the statewide access management program. The program envisions funding for the purchase of access rights where rural arterial corridors are at risk of losing capacity, safety, and of diminishing posted speeds, due to increasing development and commuter pressures. Rural arterial corridors most at risk are those where congestion is already being experienced, where driveway related crash rates exceed the 1999 average. The identification of these “at-risk” corridors is currently under way.

The program also envisions a corridor planning program where MDOT, in partnership with adjoining municipalities, property owners, and other stakeholders along a rural arterial corridor join forces to develop a plan that assures the purposes of the law are met and maintained. Such plans would outline appropriate locations for such access management techniques as frontage roads, shared driveways, intersections, turn lanes and signals. Corridors most at risk and those where interested parties are most committed to developing such plans will be favored for such planning assistance. Plans will be required to outline corridor needs that assure maintenance of safety and speed, and management of drainage, as well as the development, protection or enhancement of important natural and/ or man-made environmental features along the highway corridor.

Rural arterial corridors that are part of the NHS system will receive top priority for purposes of access acquisition and corridor planning. In addition, priority will be given to corridors where adjoining communities have already partnered by virtue of standing corridor committees and Scenic Byway corridor committees.

3.7.2 Other Initiatives

A number of new initiatives are being designed and delivered that integrate land use and the highway system. Among these are:

3.7.2.1 Scenic Byways

The Maine Scenic Byway Program is a grass roots effort to heighten the awareness of our State’s historical and natural assets. The primary intent of the Maine Scenic Byways Program is to designate roadway corridors where the intrinsic resources of the scenic corridor can be preserved, maintained, protected and enhanced through a sustainable balance of conservation and land use. Through community-based consensus and partnerships, the program will promote economic prosperity and broaden the traveler’s overall recreational and educational experience. Recent designations of Scenic Byways in the Downeast and the Kennebec River Valley Regions of Maine will encourage future efforts. Additional efforts are currently underway to assure that this program is designed to support the goals of the Growth Management Program administered by the State Planning Office.

RTACs 2, 5, 6, and 7 all have goals for preserving scenic and cultural values.

3.7.2.2 Heritage Roads

The proposed Heritage Roads Program focuses on resource protection through community-based support, for certain townways having natural beauty, cultural and/or historic value. It is designed to encourage citizens, state, regional and municipal officials to adopt strategies that will help direct and manage future growth in a way that is consistent with local land use and transportation needs. This increased connection between land use and transportation planning will help provide safe travel choices using multiple modes, and preserve scenic qualities by encouraging compatible and appropriate management, maintenance, and design standards.

RTAC 5 researched and forwarded the concept of a Heritage Roads Program to the MDOT.

3.7.2.3 Community Gateways

The Community Gateways Program is an MDOT initiative to develop community roadside landscaping partnerships between the MDOT and the communities across Maine. This program is intended to assist municipalities in developing roadsides that are characteristic of the communities and people that they serve.

The role of community involvement in developing Maine’s transportation system is well established. This role continues to grow as communities and their leaders become increasingly knowledgeable about transportation issues and the development of solutions. The Community Gateways Program provides a means for communities to continue increasing their knowledge of roadside development issues and possible solutions.

The program is currently funded in the Biennial Transportation Improvement Program to provide capital funding for roadside improvements that otherwise would not be funded. The long term effects of the program will be measured by the growing involvement of municipalities in the management of the roadsides in their communities.

Most RTACs recognize the need to protect and enhance the visual and functional condition of streets and highways. Preserving community character while providing for safe and efficient highway systems is clearly a common goal among RTACs. This goal can be achieved through integration of land use and transportation planning. Managing the affects of strip development, minimizing urban sprawl, conserving open space, managing natural resource decisions, and coordinating impacts of economic development activities are all mechanisms to be used to realize this integration.

3.7.2.4 Visitor Information Centers

MDOT has initiated a planning process to define priorities for the eventual funding of improvements to existing and new Visitor Information Centers. Currently, State supported Centers exist in Kittery, Yarmouth, Fryeburg, Hampden (2), Calais, and Houlton. There is also a facility in Bethel, but the primary Visitor Information Center in that area is owned by the U.S. Forest Service and is privately operated.

The planning process began with the review of existing capital, maintenance, locational, and operational needs of the existing facilities. In the coming months, MDOT will actively solicit input from statewide tourism interests, regional tourism and economic development interests, municipalities, and the general public. With this data collected, proposals will be outlined for the use of additional state and federal funds for these existing centers, as well as for the development of new centers statewide. This outline will include priorities and funding levels for the identified improvements.

3.7.3 Traffic Permits

Traffic Permits for major developments, once the purview of the Maine Department of Environmental Protection under the *Site Location of Development Act*, has been statutorily transitioned from the MDEP jurisdiction to MDOT jurisdiction. In June 1999, MDOT will have a process in place to issue traffic permits. In developing this permitting process, and in recognition of the high cost of development, MDOT's goal is to create an equitable, efficient and cost effective system that will ensure protection of the State's public transportation investment.

3.7.4 Integrated Transportation Decision-making

The MDOT has reorganized the processes which consider alternatives to system expansion under *STPA* and which are required under the National Environmental Policy Act (NEPA) in such a way as to eliminate duplicative steps and streamline several sets of requirements into a single process. The implementation of this new, combined process is taking place now, and the lessons learned will be applied to shorten the time lag and decrease the expense of future alternatives analysis.

3.7.5 Border Crossing Issues

Among the many factors affecting economic impact of transportation investments, the MDOT intends to address border crossing issues as one of its goals in this *20 Year Plan*.

The Office of Freight Transportation has also begun focusing on the issue of international border crossings and trade corridors leading up to them. It has been advocating for federal funds to improve Maine's crossings and corridors in order to improve the flow of freight and international trade. A feasibility study has been initiated for evaluating improvements to the Calais border crossing. Future projects using such funds could possibly include improvements to Routes 201, 26, 9 and 1 as well as to the Coburn Gore and Madawaska border crossings. MDOT is also an active member of the Eastern Border Transportation Coalition (EBTC). The EBTC is made up of transportation agencies from the states and provinces along the US-Canadian border.

3.7.6 Context Sensitive Design Standards

Highway designers have traditionally based their work on the upper limits of the standards found in AASHTO's A Policy on the Geometric Design of Highways and Streets ("The Green Book"). These standards are to ensure safety, functionality and consistency across the system. More recently, aesthetics and local context have been argued as integral design considerations. Local values are being communicated to designers who are looking for appropriate tools to respond without sacrificing safety or efficiency. The US Department of Transportation, Federal Highway Administration has recently published a document entitled Flexibility in Highway Design. This book interprets "The Green Book" as a set of guidelines on geometric design within which the designer has a range of flexibility. FHWA has adopted applicable parts of "The Green Book" as the national standard for roads on the National Highway System (NHS - Interstates and some major arterials). The design of non-NHS roads is subject to a series of standards MDOT has adopted. These are a good first step but more needs to be done. MDOT's goal is to further explore and integrate opportunities for Flexibility in Highway Design by publishing a guidebook to be used as a tool kit for designers faced with making transportation improvement decisions that are appropriate to the physical and natural environment impacted by the transportation facility. Many RTAC members and community leaders have long argued for such a step.

4.0 Funding

Maine’s transportation infrastructure was built with a combination of public and private investments over the past 300 years. The system’s maintenance and improvement still depends upon this partnership today. As we move forward into the next century, the MDOT faces the challenges of maintaining the existing highway and bridge system, creating new opportunities in other modes, and improving the connectivity among all modes. This must be done without any guarantee of increased state or federal funding, beyond current projections, over the next 20 years.

4.1 Trends in Transportation Finance

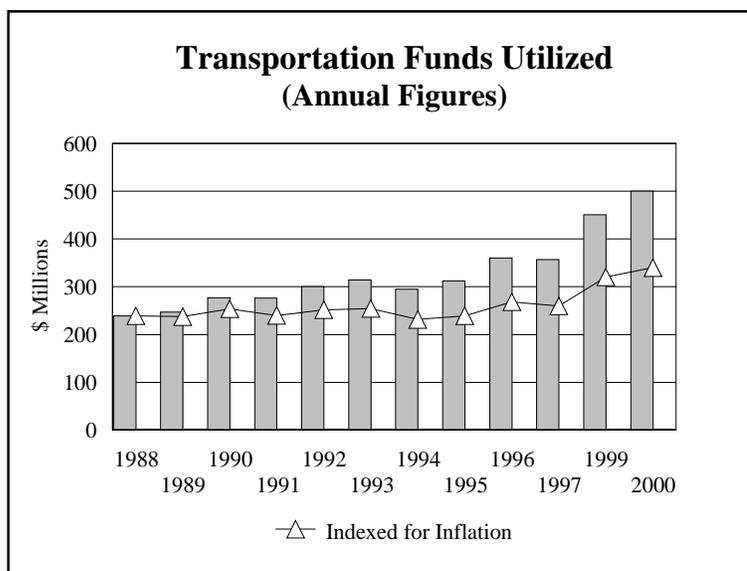
4.1.1 Funds Utilized

The principal sources of funds for public spending on transportation in Maine comes from the state’s Dedicated Highway Fund and the federal government. Funds from these sources are derived from the proceeds of motor fuel taxes, motor vehicle registration and license fees and other transportation user fees. Over the 12 year period beginning 1988 and ending 2000, fund allocations to the MDOT grew at a rate of approximately 3.9 percent per year, from a low of \$239 million in fiscal year 1988 to a high of \$504 million in 2000. When adjusted for inflation, however, funding has only slightly increased. See the chart entitled **Transportation Funds Utilized**.

Over the past 12 years, Maine’s Dedicated Highway Fund and federal transportation funds have accounted for approximately 90% of the state’s total transportation funding. Considering inflation, transportation funding has seen little growth over the past 12 years.

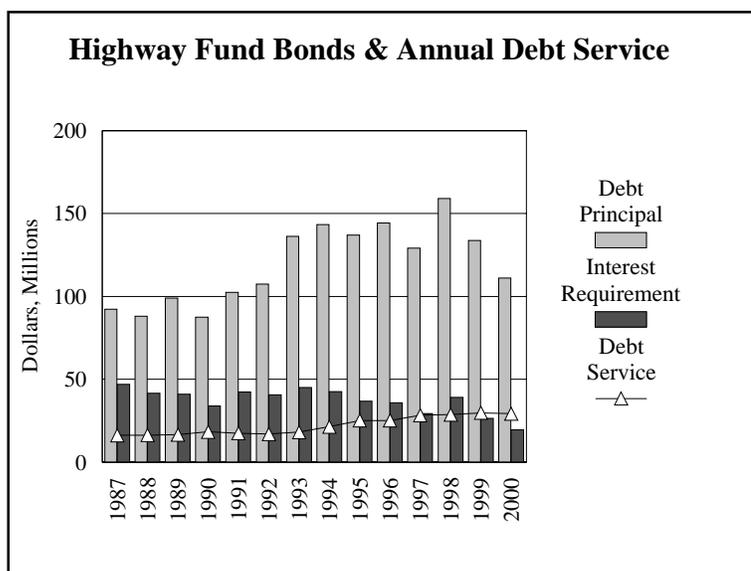
4.1.2 Revenue Sources

During the period 1990 - 1997 transportation revenues increased due only to the growth in federal allocations. As vehicles become more fuel-efficient, the state Highway Fund realizes less and less revenue from the steadily increasing vehicle miles traveled (VMT). In fact, during the period 1990-97 only a small growth in revenue took place, and none of this was available for transportation investments. So higher federal allocations pose a challenge: how to match them with a static state revenue stream? Several transportation bond issues have been proposed and approved by Maine citizens over the past two years, but increasing the state debt level is not a viable long-term solution.



4.1.3 Bonds - Debt Service

During the last 12 years, bond financing has been an important source of funding in expanding the Department’s capital program. The amount of principal outstanding has grown from \$93 million in 1987 to \$159 million in 1998. During the same period, annual debt service increased from \$16.2 million to \$28.7 million. Debt service as a percent of Highway Fund Revenue grew from 9.1% in 1990 to 13.2% in 1998. As mentioned above, this increase in the debt level has been necessitated by the requirement to match higher federal funding amounts.



4.2 Long Term Funding Outlook

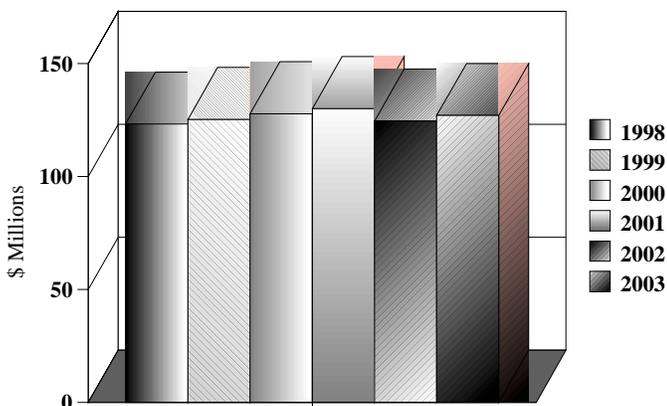
There are a number of unknowns that will influence the amount of transportation funding Maine can expect over the next 20 years:

The level and nature of future funding for transportation programs is uncertain.

- Will the integrity of the Federal Highway Trust Fund be honored and maintained?
- Will a percentage of federal gasoline tax levied on motorists continue to be impounded for deficit reduction or other purposes?
- If future transportation authorizing legislation continues to contain funding for special demonstration projects, will there be any in Maine? If so, how many? Where?
- At the state level, will the dedicated Highway Fund be sustained?
- How will motor fuel tax receipts be effected by emerging technology in the area of alternative fuels and increased motor vehicle fuel efficiency?
- Will the issuance of obligation bonds to support transportation improvements continue into the future? Increase? Decline?
- What effect will the local revenue / cost sharing options recently implemented by the MDOT have on Maine’s ability to fund capital improvements?

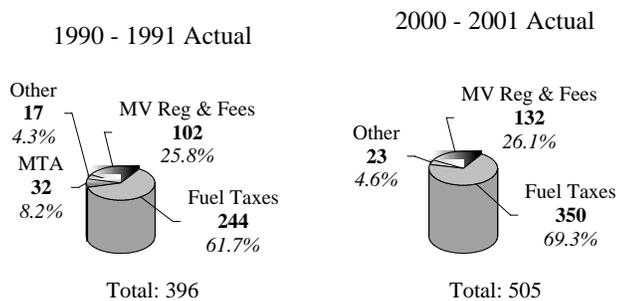
For these reasons, it is difficult to predict, with any degree of certainty, the level and nature of future funding for transportation programs. Federal dollars provide a major source of funding for capital investment in the State’s transportation system, and with the passage of *TEA-21* the level of federal funding can be projected at a six year average of \$126 million / year, a small increase over *ISTEA* levels. The chart labeled **Federal Funding levels for Maine** shows estimated federal transportation revenues.

Federal Funding levels for Maine Under TEA-21



At the state level, trends over the past decade are shown in the pie chart labeled **State Highway Fund Revenues**. It is expected that gains in Highway Fund revenue resulting from increased vehicle-miles of travel will be offset by improvements in motor vehicle fuel efficiency and the use of alternative fuels. Barring any changes to the State’s current revenue structure, state funding for transportation will, at best, continue to show slight gains over time.

State Highway Fund Revenues Biennial in Millions of Dollars



4.3 Financing The Plan

The previous chapter provided a view of the transportation investments that are needed over the next 20 years to maintain our current systems, improve safety, provide mobility to the state’s traveling public, and to keep the economy of Maine moving.

Meeting the needs will require substantial increases in transportation revenue. Leaving transportation revenues at current rates would mean inadequate funding over the next 20 years to preserve even current facilities and services. Faced with this dilemma, the State’s transportation plan must assure a

There remains a need to enhance the State’s revenue stream to meet growing demands for transportation improvements and programs.

balanced approach to meeting transportation needs within a sensible level of expected funding.

4.4 Transportation Financing Options

Over the past few years, the MDOT has made significant progress in addressing transportation funding issues. Notable accomplishments include:

- The elimination of substantial unfunded liabilities in its capital program;
- The restoration of the integrity of the Highway Fund;
- General Fund Bond funding for some bridge work;
- General Fund appropriations for some highway improvements;
- An increase in funding for capital programs as a result of personnel and operating cost savings realized through ongoing productivity efforts;

All RTACs support more efficient use of funds, and agree that an adequate level of funding for proper transportation infrastructure maintenance, rehabilitation, construction and/or reconstruction is needed. In particular, Region 3 suggests that current funding mechanisms be examined and improved where appropriate and that new mechanisms be explored. In addition, it is suggested that life cycle costs be considered in moving projects forward. Region 7 suggests that funding decisions be made relative to local land use regulations and that adequate funding for local road assistance be maintained.

- The development of new cost-effective ways to deliver capital projects;
- The aggressive pursuit of one-time grants, demonstration and discretionary funding to fund non-highway and bridge transportation projects; and
- The adoption of a realistic budget for the Maine State Ferry Service.

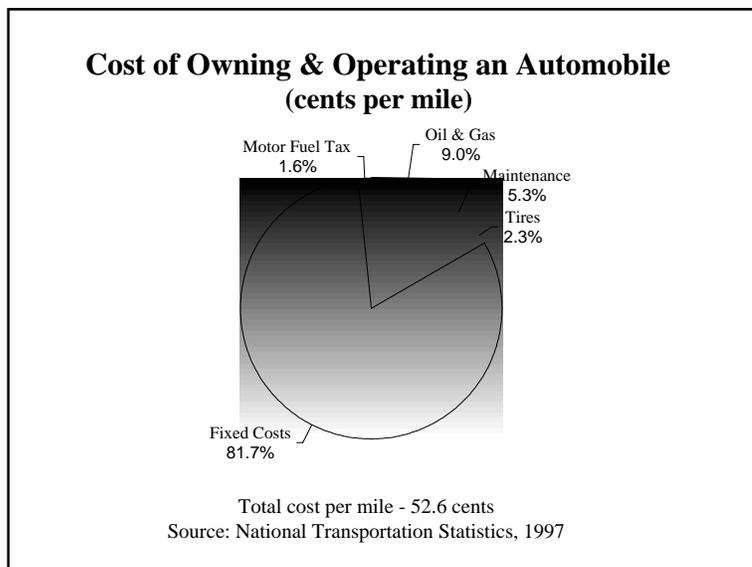
With all this, there remains a need to enhance the State's revenue stream to meet its growing demands for transportation improvements and programs.

4.4.1 Motor Vehicle Fuel Tax

Transportation costs presently account for 20% of total household consumer spending. It is estimated that the total cost of owning and operating an automobile today is approximately 52.6¢/mile. This includes fixed costs of 43¢/mile (insurance, registration, taxes, finance charges, depreciation) and operating costs of 9.6 ¢/mile (gasoline, oil, maintenance, tires). Maine's current 22¢ per gallon tax on gasoline represents only 1.6% of that total cost. See chart at right. Over the last decade, the fuel efficiency of the average passenger car traveling on Maine's highways has increased from 18.20 to 22.56 miles per gallon. While this is a noteworthy achievement in terms of energy conservation, it has had the effect of reducing the fuel tax paid per mile of travel. Considering the effect of inflation, the average motorist actually pays 20% less today in fuel taxes per mile than they did in 1985 while the cost of maintaining the system increases. Because motor fuel taxes constitute the largest single revenue source for the State's Highway Fund, options that provide for its stability over time must be considered. For every one cent rise in the fuel tax, Maine can generate approximately \$7.2 million per year.

4.4.1.1 Increase the Motor Fuel Tax Rate

The table labeled **New England Fuel Tax Comparisons** summarizes the motor fuel tax rates for the six New England states. Overall, Maine’s current tax rate is below the New England average. The tax on gasoline ranges from a low of 18.7¢ per gallon in New Hampshire to a high of 32¢ per gallon in Connecticut.



4.4.2 Motor Vehicle Licenses and Fees

Motor vehicle licenses and fees constitute the second largest source of contributions to the Highway Fund. Maine’s motor vehicle registration fees are significantly less than the New England average. Increasing motor vehicle license and registration fees is a potential source of additional Highway Fund Revenue. For example, consideration could be given to instituting a weight-distance tax on heavier commercial vehicles in place of the current fees that are determined by registered weight only. A weight distance based commercial vehicle fee system, such as that used currently in the State of Oregon, would more equitably reflect actual usage and consumption of the highway system by heavy vehicles than the current system which ignores vehicle miles of travel.

The average Motorist pays 20% less today in fuel taxes per mile than they did in 1985.
Maine’s current fuel tax is 2¢ below the New England average, and represents approximately 1.6% of the total cost of owning and operating a motor vehicle.

4.4.3 State General Funding

The State’s General Fund (GF) could play a greater role in financing transportation as some of these improvements or programs provide broad benefits to the general public rather than just the road user. Transportation promotes and supports economic development which, in turn, increases general revenue to the state.

	Gasoline	Diesel
Maine	22.0	23.0
New Hampshire	18.7	18.7
Vermont	20.0	17.0
Connecticut	32.0	18.0
Massachusetts	21.0	21.0
Rhode Island	29.0	29.0
<i>New England Average</i>	<i>23.8</i>	<i>21.12</i>
<i>National Average</i>	<i>20.8</i>	<i>21.08</i>

Roughly 20% of sales tax revenue that goes into the General Fund is derived from the sale of transportation items: automobiles, trucks, parts and accessories for them. Even if only a portion of these GF revenues were dedicated to transportation infrastructure improvements the impact could be large. The General Fund could also assume the financing of debt incurred for transportation projects.

	Typical Auto	Typical Single-Unit Truck
Maine	25.00	130.00
New Hampshire	31.20	141.50
Vermont	43.00	286.10
Connecticut	70.00*	194.00
Massachusetts	30.00*	252.75
Rhode Island	30.00	158.00
<i>New England Average</i>	<i>29.90</i>	<i>193.70</i>

*2-year period

4.4.4 Increase Cost Efficiency

The MDOT has realized great success in achieving cost-efficiencies in the delivery of its capital improvement projects. The MDOT will continue to take advantage of technological advances and other opportunities to further this goal.

4.4.5 Innovative Financing Options

Because traditional government sources cannot provide sufficient funds to meet current, as well as future transportation infrastructure needs, new approaches and funding mechanisms must be developed and implemented to increase the amount of investment capital available through more effective use of existing funds. *TEA-21* provides a number of innovative financing techniques that can be utilized by the states to maximize their transportation dollars. The state must continue to explore these financing options and utilize them to the fullest extent where applicable.

4.4.5.1 State, Local and Private Partnerships

For a number of years the MDOT has encouraged local partnerships in the funding of certain infrastructure improvements. Highway improvement projects within the State’s urban areas have required a local cost share, as well as projects implemented under such programs as the Collector Road Development Awards, Local Bridge, Rail/Highway Grade Crossings, Transportation Enhancements, and Congestion Mitigation and Air Quality.

Explore Maine is an example of a successful public-private partnership. Private groups and industries paid half of the Plan’s cost. More importantly, the plan proposes the development of a transportation network that utilizes both public and private funding. The state is identified as the developer of infrastructure, with the private sector providing transportation services.

The MDOT has recently reestablished the Maine Port Authority to undertake rail and marine transportation initiatives. The Port Authority has revenue bonding power and will be able to reinvest profits into the port infrastructure and transportation system.

The Legislature passed the Rural Road Initiative in 1999 after extensive consideration by the Transportation Committee and after extensive municipal outreach by MMA and MDOT. The Rural Road Initiative creates a framework from which to build an aggressive state aid minor collector reconstruction program for the first time in decades. Under the Rural Road Initiative, municipalities will pay 33% of costs for capital work (major improvements) to these roads (the

money has to be “upfront” and cannot be deducted from quarterly URIP payments). The state will contribute 67%. Municipal administration of the construction work, if eligible, can save significant money for both the towns and the state taxpayers.

The MDOT will continue to explore new approaches to further encourage this partnership among federal, state, and local investment funding sources.

4.4.5.2 Maine Turnpike Authority As A Financial Partner

The MDOT and the Maine Turnpike Authority (MTA) have effectively worked together for the past fifty years to foster a partnership in which the Turnpike is recognized as a vital component of Maine’s statewide transportation system.

In January of 1997, a study was completed for the MDOT and the MTA entitled “Statewide Transportation Partnering Study” which examined ways the two agencies might work together, even more closely, in the financing of transportation infrastructure improvements within the state. The study identified ways in which the MDOT and MTA, by continuing to work together, can increase the amount of bonded debt that can be leveraged for infrastructure and maintenance improvements throughout the state. These options include the extension of MTA’s responsibilities with respect to non-tolled sections of Maine’s highway system, the advancement of further capital sums from MTA to MDOT, and the issuance of bonds by MTA to raise these moneys. Further, the innovative financing techniques and expanded flexibility in the use of federal funds provided by *TEA-21* create the possibility of additional forms of financial cooperation which should be explored. This form of public-private partnership may prove to be an excellent supplemental source of capital for financing transportation infrastructure improvements.

4.4.5.3 State Infrastructure Bank (SIB)

The MDOT has established a State Infrastructure Bank (SIB) that can offer loans and credit options to customers to help finance transportation projects. Presently, the SIB has limited capital and is being used principally to support the local share of projects associated with the Collector Road Development Award (CRDA) program. The role of the SIB can be expanded to offer a variety of forms of financial assistance to support different types of transportation projects throughout the state. The MDOT will consider further capitalization of the SIB as a mechanism to encourage increased public and private investment in transportation infrastructure improvements.

4.5 Resource Allocation

At current funding levels only top priority transportation needs will be met. It is essential that the MDOT adopt a careful plan for spending its resources.

Even with the increases provided for in *TEA-21*, state and federal funding for transportation will remain stable, or, at best, increase only slightly over the foreseeable future. This dictates that only top priority transportation needs will be met. In this constrained environment it is essential that the MDOT adopt a careful plan for spending the resources likely to be available to it to advance its mission and goals as far as possible. For the purposes of resource allocation the MDOT has established five broad categories: system preservation, system management, system reconstruction, new capacity, and miscellaneous programs.

4.5.1 System Preservation

System preservation includes all those activities designed to maintain the physical integrity of the existing transportation infrastructure. Projects include bridge rehabilitation and replacement, airport runway and highway resurfacing, transit vehicle replacements, public port facilities refurbishment, rail/highway hazard elimination and other miscellaneous structural or safety improvements.

4.5.2 System Management

System management incorporates low-cost activities designed to improve the efficiency and safety of the existing transportation system. Projects include traffic operational improvements, traffic signal improvements, constructing and improving park & ride lots, sponsoring and supporting rideshare programs, improving intermodal connections, and access management.

4.5.3 System Improvement

System reconstruction involves extensive work designed to bring deteriorated transportation infrastructure up to current design, operational and safety standards. Projects include reconstruction of roadway base, drainage improvements, increase in width of travel lanes and shoulders, and other operational and safety improvements. Also under this category would be capital improvements in support of passenger and freight transportation initiatives such as land side construction for passenger ferries and intermodal freight transfer facilities.

4.5.4 New Capacity

New capacity projects are major capital investments designed to increase the ability of the transportation system to carry people and goods. Projects include constructing highways on new alignment, addition of through travel lanes, or construction of new rail lines.

4.5.5 Miscellaneous Projects

Miscellaneous projects include those considered as eligible activities under such programs as transportation enhancements, Congestion Mitigation and Air Quality, and Scenic Byways.

The resource allocation policy proposed by the MDOT as part of this plan is articulated below. It recognizes the need to preserve and effectively manage our existing transportation infrastructure before new and expanded transportation services and facilities are contemplated. The policy provides a rational strategy for the deployment of anticipated resources to provide the citizens of the state with the best transportation system possible.

Proposed Resource Allocation Policy

1. Meet system preservation needs first

Good management of a large system of capital facilities like the state's transportation system requires a continuing investment in system preservation.

2. Invest in system improvement needs for all modes second

When system preservation needs have been addressed, the Department must turn its attention to the significant backlog of transportation infrastructure reconstruction needs. A safe and efficient transportation system is key to the State's economic growth.

3. Continue to invest in transportation system management and travel demand management alternatives.

In today's economic and environmental climate, the demand for transportation mobility must be addressed, to the extent possible, through actions which maximize the efficiency of our existing transportation infrastructure.

4. Continue investment in all modes of transportation.

The Department must continue its efforts to provide a "seamless" interconnection between all modes, both for passengers and freight. Mobility options such as trains, buses, air and ferries can be efficient, environmentally sensitive and cost-effective modal choices.

5. Target limited resources for new capacity to the highest priorities.

Funding for new capacity projects is extremely limited. Only those projects that support state and regional transportation goals and strategies and having demonstrated merit and strong public support will be considered.

Appendix

GLOSSARY OF TERMS



- ADA** Americans with Disabilities Act of 1991. A major civil rights law passed by Congress to establish access to programs, employment, housing, public services, etc. for those Americans with physical and/or mental disabilities.
- BACTS** Bangor Area Comprehensive Transportation Study
- BTIP** Biennial Transportation Improvement Program: The document submitted to the Maine Legislature every two years is support of MDOT's budget request.
- CAAA** Clean Air Act Amendments of 1990. The law which updates and puts authority behind the earlier Clean Air Act. This law specifically ties clean air improvements with receipt of federal transportation funding and imposes requirements on the transportation sector.
- CMAQ** Congestion Mitigation Air Quality Program. A program under *ISTEA* to assist the states with implementation and compliance under the Clean Air Act Amendments of 1990. The program grants funds to projects that are calculated to reduce ozone precursors.
- CO** Carbon Monoxide A colorless, odorless, tasteless gas formed in large part by incomplete combustion of fuel. Fuel combustion activities (i.e., transportation, industrial processes, space heating, etc.) are the major sources of CO. High concentrations of CO can develop near these combustion sources. Therefore, facility specific, or "hot spot" analysis is often used to identify potential CO problems. Carbon Monoxide is addressed under the National Ambient Air Quality Standards. Maine does not exceed the CO standard at present.
- DECD** The Department of Economic and Community Development is a cabinet level agency charged with four major policy functions: to attract and assist business, to develop and manage tourism, to oversee community development, and comprehensive land use planning. Regional Planning Commissions (RPCs) work with the Department's Office of Community Development's Division of Community Planning.
- DEP** Department of Environmental Protection. A cabinet level agency within state government. The agency is charged by law with the protection and improvement of the quality of the natural environment and its resources, and the enhancement of the environment through ecologically sound growth and development policies and programs. It is the agency which is charged to administer the Clean Air Act Amendments of 1990 and the Natural Resources Protection Act among others.
- Enhancement (Program):** A set aside of Surface Transportation federal funds used to enhance the transportation infrastructure with non-core amenities such as landscaping, bike paths, and scenic turnouts.
- EPA** The Environmental Protection Agency. The federal agency in charge of protecting the environment including the implementation of the provisions of the CAAA of 1990 on the federal level and federal Clean Water Act.
- FAA** Federal Aviation Administration. A branch of the US Department of Transportation charged with responsibilities to administer programs and funding impacting aviation.
- FHWA** Federal Highway Administration. A branch of the US Department of Transportation charged with responsibilities to administer federal programs and funding relating to highways.
- FRA** Federal Railroad Administration. A branch of the US Department of Transportation charged with responsibility of administering programs and funding impacting rail transportation.
- FTA** Federal Transit Administration. A branch of the US Department of Transportation charged with responsibility of administering programs and funding impacting mass transit. It was formerly known as UMTA, the Urban Mass Transit Administration.

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- FTAC** Freight Transportation Advisory Committee: a committee composed of representatives of freight transportation consumers and companies which advises the MDOT on issues of relevance to freight transportation.
- GVW** Gross Vehicle Weight
- HAUL ROAD** A state road determined to be used extensively by the forest product industry and therefore needing additional structural improvement to maintain the quality of the road.
- HIGHWAY PRESERVATION** Actions taken to preserve the investment in an existing highway, such as repaving, crack sealing, drainage repair, etc.
- HIGHWAY IMPROVEMENT** Actions taken to bring an existing highway up to modern standards applicable to the functional class for the road.
- HIGHWAY RECONSTRUCTION** See above under **Highway Improvement**.
- HOV** High Occupancy Vehicle. Any motor vehicle with more than one occupant.
- HSIP** Highway Safety Improvement Program
- I/M** Inspection and Maintenance Program. A required program in Maine's "moderate" nonattainment areas. Will require operators of vehicles in Maine's seven nonattainment counties to have their vehicles checked and maintained to meet specific emissions standards. It is one program calculated to assist Maine's compliance with the CAAA of 1990.
- ISTEA** The Intermodal Surface Transportation Efficiency Act of 1991. Represents the first major shift in national transportation policy since the Interstate system was completed. The *ISTEA* recognizes and puts into place programs and funding for a variety of transportation modes including preservation of existing systems along with transportation initiatives.
- ITS** Intelligent Transportation Systems.
- KACTS** Kittery Area Comprehensive Transportation Study
- LACTS** Lewiston-Auburn Area Comprehensive Transportation Study
- LEV** Low Emission Vehicle
- LULU** Locally unwanted Land Use
- M&O** Maintenance and Operation (Bureau of MDOT)
- MDOT** Maine Department of Transportation. A cabinet level agency of state government with the authority to plan and develop adequate, safe and efficient transportation facilities and services which will contribute to the economic growth of Maine and the well-being of its people. The planning and development of such facilities and services shall be coordinated by the MDOT.
- MPO** Municipal Planning Organization. A forum for cooperative transportation decision making for a metropolitan planning area. Maine has four such organizations one for the Kittery area (KACTS), one for the Bangor area (BACTS), one for the Lewiston area (LACTS) and one for the Portland area (PACTS). (ACTS stands for Area Comprehensive Transportation Study)
- MRSA** Maine Revised Statutes Annotated. The compilation of the state's laws in a format which allows for updating. It is typically seen as a reference for a specific law, i.e. 23 MRSA 73 refers to the Sensible Transportation Policy Act.
- MSFS** Maine State Ferry Service is a branch of the MDOT Division of Ports and Marine under the Bureau of Transportation Services. The MSFS services six islands off the Maine coast: Frenchboro and Swan's Island out of Bass Harbor; Islesboro out of Lincolnville; North Haven, Vinalhaven and Matinicus out of Rockland.
- MTA** Maine Turnpike Authority. A legal body established chiefly with the purpose of constructing, maintaining, reconstructing and operating a toll turnpike from Kittery to Augusta.
- MTIP** Metropolitan Transportation Improvement Program
- NAAQS** National Ambient Air Quality Standards
- NEPA** National Environmental Protection Act

NESCAUM North East State Coordinated Air Use Management

NETI New England Transportation Initiative

NHS National Highway System. All the major roads in the United States including all interstate routes and a large percentage of urban and rural principal arterial highways and those considered part of the defense strategic highway network and strategic highway connectors. Formerly referred to as HNS, Highways of National Significance.

NHTSA National Highway Traffic Safety

Nonattainment Area A geographic region of the United States that the EPA has designated as not meeting the NAAQS.

NO_x Oxides of Nitrogen. One of two precursors necessary to form ozone. The CAAA of 1990 requires reduction of NO_x and volatile organic compounds (VOC). NO_x + VOC + Sunlight + Heat = ozone.

NSC National Safety Council

Ozone Ozone is a colorless gas with a sweet odor. Ozone is not a direct emission from transportation sources. It is a secondary pollutant formed when HC and NO_x combine in the presence of sunlight. The ozone is associated with smog or haze conditions. Although the ozone in the upper atmosphere protects us from harmful ultraviolet rays, ground level ozone produces an unhealthy environment in which to live. Ozone is created by human and natural sources.

PACTS Portland Area Comprehensive Transportation Study

PCE Preconstruction Engineering. A term used by MDOT to indicate all necessary work such as surveys, preliminary engineering, preliminary and final design and environmental work is done and the project is ready to be funded for construction.

PM₁₀ An air pollutant composed of suspended particulate matter less than 10 microns in diameter.

PM_{2.5} An air pollutant composed of suspended particulate matter less than 2.5 microns in diameter.

PTAC Passenger Transportation Advisory Committee: a committee composed of representatives of passenger transportation companies and other businesses which advises the MDOT on issues of relevance to passenger transportation.

Reasonable Transportation Alternatives Reasonable transportation alternatives are ones which adequately respond to the identified deficiency or need in the transportation network, are cost effective, and are capable of being implemented within a reasonable time period necessary to meet the transportation deficiency or need.

ROW Right-of-Way

RPC Regional Planning Commissions. Organizations whose purposes are to promote cooperative efforts toward regional development, prepare and maintain a comprehensive regional plan with adequate public input in its preparation, coordinate with state and federal planning and development programs and provide planning assistance and advisory services to municipalities and to RTACs.

RTAC Regional Transportation Advisory Committee

Section 402 Federal Highway Safety Funds

SIP State Implementation Plan. A plan mandated by the CAAA that contains procedures to monitor, control, maintain, and enforce compliance with the NAAQS. The SIP serves as a blueprint which will show EPA how Maine will meet compliance requirements of the CAAA of 1990. Transportation planning must take the SIP into account. The SIP is a plan developed and administered by the Department of Environmental Protection.

SOV Single Occupancy Vehicle. Transportation planning must consider measures which will reduce use of such vehicle trips and as a result, reduce vehicle emissions and promote energy efficiency to assist in compliance of the CAAA of 1990.

SPO State Planning Office is a branch of the Executive Department of the state. Its purpose is threefold: shortterm analysis; long-range policy analysis; and program coordination. The office assists the Governor and other state agencies in the development of economic, energy, fiscal and regulatory policy.

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- STIP** Statewide Transportation Improvement Program. A multiyear, statewide, intermodal program of transportation projects which is consistent with all other required transportation plans developed within the state. The STIP has a three year life.
- STPA** Sensible Transportation Policy Act. A Maine law passed by referendum vote in November of 1991. The passage led to the eventual creation of the RTACs. It sets objectives for all transportation planning projects and capital investment decisions.
- TCM** Transportation Control Measures Any measure in a SIP directed toward reducing emissions of air pollutants from transportation sources by improving traffic flow, reducing congestion, or reducing vehicle use.
- TDM** Transportation Demand Management. Actions which are designed to change travel behavior in order to improve performance of transportation facilities and to reduce need for additional highway capacity. Methods may include, but are not limited to, ridesharing and vanpool programs, trip reduction incentives and congestion mitigation pricing. These methods will generally be evaluated on a regional basis rather than a project by project basis.
- TEA-21** Transportation Equity Act for the 21st Century. The current authorizing federal transportation legislation, passed and signed in 1998.
- TIP** The MPO's Transportation Improvement Program which selects projects for funding as required by *ISTEA*. MDOT's programming document which it presents to the legislative every 2 years (*BTIP*) also has been referred to as the TIP. To avoid confusion in this plan, the traditional MDOT TIP is herein referred to as the "MDOT's programming document," or simply *BTIP*.
- TMA** Transportation Management Association
- TRB** Transportation Research Board
- TSM** Transportation System Management
- USC** United States Code
- USDOT** United States Department of Transportation
- UVC** Uniform Vehicle Code
- VMT** Vehicle Miles Traveled
- VOC** Volatile Organic Compounds

Summary of Metropolitan Planning Organization Plans

Bangor Area Comprehensive Transportation Study (BACTS)	
MAJOR ISSUES	KEY INITIATIVES
<i>Improve Mass Transportation</i>	<ul style="list-style-type: none"> ◆ Evaluate the potential of a variety of services, including: fixed route/fixed schedule transit, van pool and rideshare services, and park & ride facilities, and develop plans for them.
<i>Recognize Bangor International Airport's important role in BACTS transportation system planning.</i>	<ul style="list-style-type: none"> ◆ Facilitate multi-modal access to the airport. ◆ Prepare for future growth in the airport area by promoting compatible surrounding land-use.
<i>Integrate rail transportation into the BACTS transportation system planning</i>	<ul style="list-style-type: none"> ◆ Facilitate multi-modal access to rail facilities. ◆ Include wider public involvement in future rail decision making.
<i>Prepare for future rail expansion if warranted by economic and/or environmental considerations.</i>	<ul style="list-style-type: none"> ◆ Prepare for future restoration of rail passenger service. ◆
<i>Encourage the use of marine transportation, where it has potential benefits to surrounding communities</i>	<ul style="list-style-type: none"> ◆ Facilitate multi-modal access to marine facilities.
<i>Continue to plan for and implement a comprehensive bikeway/pedestrian system</i>	<ul style="list-style-type: none"> ◆ Continue to involve citizens in planning and implementing bike and pedestrian facilities. ◆ Plan for and implement improvements aimed at allowing safe and efficient transportation by means of bicycles and foot traffic. ◆ Include considerations for bicycle and pedestrians in the design of road and intersection improvements. ◆ Seek federal and state funding to support the development of an integrated system of bicycle and pedestrian facilities.
<i>Improve public safety; reduce the frequency and severity of traffic accidents.</i>	<ul style="list-style-type: none"> ◆ Encourage education and enforcement of traffic laws. ◆ Maintain/repair/reconstruct roadways, bridges, and intersections where necessary to improve traffic safety. ◆ Evaluate the movement of hazardous materials on the highway system. ◆ Consider provisions for bike/pedestrian and other non-motorized modes of transportation, as well as facilities for the disabled, in all references to "highway system" safety. ◆
<i>Reduce/minimize traffic congestion and vehicle miles of travel (VMT).</i>	<ul style="list-style-type: none"> ◆ Undertake improvements that will reduce and or minimize traffic congestion, giving highest priority to roads which carry the largest numbers of goods and people. ◆ Encourage the use of other modes of transportation, including transit, and bicycle and pedestrian facilities. ◆ Promote rideshare facilities and programs ◆ Reduce commuting-related congestion
<i>Maintain and improve pavement conditions, to</i>	<ul style="list-style-type: none"> ◆ Encourage BACTS communities to utilize the pavement management program developed by BACTS.

<p><i>enhance traffic flow and public safety, and minimize costly repairs in the future.</i></p>	<ul style="list-style-type: none"> ◆ Take steps to minimize pavement deterioration
<p><i>Develop a better, more responsive transportation system that reduces resource use.</i></p>	<ul style="list-style-type: none"> ◆ Comply with federal and state requirements relative to increasing highway capacity through construction. ◆
<p><i>Facilitate public involvement in BACTS activities.</i></p>	<ul style="list-style-type: none"> ◆ Ensure that the public participation process complies with the spirit and the intent of <i>ISTEA</i> and Maine <i>STPA</i>. ◆ Establish a user-friendly mechanism to provide current information on projects, process, and upcoming meetings. ◆ Provide for meaningful public input for all phases of the highway planning process.
<p><i>Ensure that local projects are related to regional priorities, and that regional projects are thoroughly evaluated in terms of local impacts.</i></p>	<ul style="list-style-type: none"> ◆ Provide for fundamental improvements in the planning process.

Kittery Area Comprehensive Transportation Study (KACTS)	
MAJOR ISSUES	
<i>Highway</i>	<ul style="list-style-type: none"> ◆ Support the development of an additional interchange on I-95 north of the mall area in Kittery. ◆ Support and implement projects which address High Accident Locations (HALs) in the KACTS area. ◆ Monitor accident frequency and type along the Route 1 Bypass to determine the effect of removing the limited access median. ◆ Support, as needed, repair or replacement of the I-95, Route 1 Bypass, and Route 1 bridges over the Piscataqua river. ◆ Implement recommendations from current and future KACTS studies, including the Kittery Route 1 and Route 236/Academy Street study. ◆ Explore and support efforts to reduce the amount of vehicles entering the Kittery traffic circle, and improve traffic flow through the circle and on the Route 1 Bypass.
<i>Public Transportation</i>	<ul style="list-style-type: none"> ◆ Continue financial and planning support for public transportation services, and expand and/or enhance those services when necessary. ◆ Support the implementation of passenger rail service between Boston and Portland. ◆ Explore the establishment of transit links between Maine and the Portsmouth Dover-Rochester, N.H. urbanized area.
<i>Bicycle & Pedestrian</i>	<ul style="list-style-type: none"> ◆ Support the development of a bicycle and pedestrian corridor along the proposed gas pipeline project through the KACTS communities. ◆ Continue and expand the KACTS Bicycle Safety Program for children in local schools. ◆ Support the development of a bicycle & pedestrian corridor linking and enhancing access to schools in the KACTS area. Bicycle and pedestrian access should also be considered in any capital improvements made at the schools.
<i>Land Use and Transportation Demand Management (TDM)</i>	<ul style="list-style-type: none"> ◆ Support efforts to preserve capacity on Route 236, and, if warranted, assist the municipalities along the corridor in developing an highway access management plan or corridor preservation plan. ◆ Continued support and assistance of the Southern Maine RideShare Program.
<i>General</i>	<ul style="list-style-type: none"> ◆ Support the development of applicable Intelligent Transportation System (ITS) strategies to enhance transportation and communication in and around the MPO area.

Lewiston/Auburn Comprehensive Transportation Study (LACTS)	
MAJOR ISSUES	KEY INITIATIVES
<i>Limited access to the Maine Turnpike</i>	<ul style="list-style-type: none"> ◆ Support construction of interchanges at Crowley-Grove St., Lewiston/Sabattus; Route 9 - Sabattus; & South Main St. - Rte. 136 - Auburn.
<i>Unacceptable operational conditions of the Route 196 Coastal Connector</i>	<ul style="list-style-type: none"> ◆ Implement transportation demand management (TDM); introduce enhanced transit operations; make system improvements at troubled intersections; improve access management; and introduce passing lanes where practical.
<i>Route 4 and Route 26 - The Canadian Connection</i>	<ul style="list-style-type: none"> ◆ Support operational improvements to Routes 4 and 26 which link to Quebec and Montreal. Support of joint planning efforts between Maine, New Hampshire & Quebec to facilitate this routing.
<i>Access Management</i>	<ul style="list-style-type: none"> ◆ Study Center Street in Auburn and Main Street in Lewiston and recommend an access management plan for these two important arterials.
<i>Establishment of a Metropolitan Truck Routing System</i>	<ul style="list-style-type: none"> ◆ Develop a metropolitan area truck route network of principal and minor arterials.
<i>Highway Improvement Projects List</i>	<ul style="list-style-type: none"> ◆ Maintain a ten-year list of highway improvement projects related to the attainment of specified levels of condition and performance documented in the LACTS Unified Planning Work Program.
<i>Need for a safe, interlinked bicycle system</i>	<ul style="list-style-type: none"> ◆ Encourage implementation of a long-range bicycle plan along existing roadways which follows arterial highways, links neighborhoods, accesses recreational attractors, facilitates through-town traffic, and, may eventually provide for off-road facilities.
<i>Pedestrian Barriers -- Fixed-Route Transit</i>	<ul style="list-style-type: none"> ◆ Advocate investments in pedestrian facilities (i. e., sidewalks, crosswalks, benches & shelters) along all bus routes.
<i>Pedestrian Barriers -- Shopping Malls</i>	<ul style="list-style-type: none"> ◆ Supporting pedestrian enhancement projects that will improve accessibility around the Auburn and Lewiston Malls.
<i>Pedestrian Barriers -- Central Business Districts</i>	<ul style="list-style-type: none"> ◆ Pedestrian improvement projects around Auburn, Lewiston, and Lisbon as enumerated in the LACTS UPWP.
<i>Low Ridership on the Public Transit Service due to the “flight” to the suburbs, increase in automobile ownership, relatively constant price of gasoline, and reduction in bus service.</i>	<ul style="list-style-type: none"> ◆ Promote the restoration of weekend service to shopping malls; suburban service; schedule coordination with intercity service; restoration of all-day fixed-route bus service with systems modifications and improvements; and the implementation of a new marketing strategy.
<i>The need for a long-range plan for transit which focuses more on improved facilities and provides more transit options to the community.</i>	<ul style="list-style-type: none"> ◆ Assess the need for a fixed-route and paratransit bus providers for a new garage facility in the urban area. ◆ Study the feasibility of constructing “transport” or “intermodal” service centers to serve as passenger junctions for modal or bus-to-bus transfers. ◆ Support the implementation of a user-side incentives program which would allow customers to decide on how best to use public funding based upon the individual’s transportation needs.

Portland Area Comprehensive Transportation Study (PACTS)	
MAJOR ISSUES	KEY INITIATIVES
<i>Enhance Prosperity and Economic Development.</i>	<ul style="list-style-type: none"> ◆ Improve access to highway, rail and waterfront facilities for commercial and industrial development. ◆ Allocate and coordinate transportation spending to optimize economic development benefits to the region.
<i>Improve the Movement of Goods and the Mobility of People in the Region.</i>	<ul style="list-style-type: none"> ◆ Maintain and improve a roadway system to accommodate inter and intra regional level travel ◆ Improve mobility within the region other than by travel in a single occupant vehicle.
<i>Conserve Nonrenewable Energy Resources.</i>	<ul style="list-style-type: none"> ◆ Consider the consistent use of “full cost” analysis as part of major transportation studies. ◆ Create the necessary infrastructure to serve vehicles powered by alternative fuels, e.g., electric and natural gas.
<i>Link Land Use Development Patterns to Transportation Planning.</i>	<ul style="list-style-type: none"> ◆ Ensure the development of an integrated planning system that incorporates land use, transportation, and environmental issues. ◆ Plan so that land use patterns and infrastructure promote inter-connectivity, pedestrian travel and greater choice of transportation networks.
<i>Protect and Improve Environmental Quality.</i>	<ul style="list-style-type: none"> ◆ Develop consistency and compatibility between current transportation solutions and environmental quality goals.

Service Center Communities

<p>Major / Primary Centers (29)</p>	<p>Auburn Lewiston Caribou Fort Kent Houlton Presque Isle Brunswick Portland</p>	<p>Farmington Bar Harbor Blue Hill Ellsworth Augusta Gardiner Waterville</p>	<p>Camden Rockland Boothbay Harbor Damariscotta Paris Bangor Lincoln</p>	<p>Dover-Foxcroft Greenville Skowhegan Belfast Calais Machias Millbridge</p>
<p>Minor/ Secondary Centers (21)</p>	<p>Madawaska Mars Hill Van Buren Falmouth South Portland Westbrook</p>	<p>Rangeley Thomaston Wiscasset Norway Dexter</p>	<p>Newport Orono Bath Bingham Jackman</p>	<p>Pittsfield Unity Lubec Biddeford Sanford</p>
<p>Small Centers (19)</p>	<p>Ashland Island Falls Bridgeton Freeport Bucksport</p>	<p>Hallowell Winthrop Rumford Brewer Millinocket</p>	<p>Guilford Milo Eastport Princeton</p>	<p>Kennebunk Bethel Saco Kingfield Kittery</p>

**MDOT PLANS INCLUDED BY REFERENCE IN THE TWENTY YEAR
TRANSPORTATION PLAN 1998-2018**

Maine Integrated Freight Plan: An inventory of the current freight transportation network, identification of major and minor shortcomings, a methodology for assessing project benefit/cost ratios and a policy for addressing potential public-private investments and to target projects. An update of the 1998 Plan is currently being implemented. (Office of Freight Transportation and Freight Transportation Advisory Committee)

Explore Maine: A visitor oriented strategic plan which proposes to develop an integrated system of modal options that will attract travelers to Maine, and provide modal choice for Maine's citizens. 1997 (Office of Passenger Transportation and Passenger Transportation Advisory Committee)

Maine State Ferry Service Strategic Plan: A five-year strategic plan developed to address the needs and deficiencies of the State Ferry Service. 1996 (Office of Passenger Transportation and Maine State Ferry Service Advisory Board)

Maine State Aviation Systems Plan: A plan designed to guide growth of aviation community for next twenty years is currently being implemented. Includes an inventory of existing facilities, projections of aviation demand, adequacy review and recommended system improvements, facility requirements, and an implementation plan. (Office of Passenger Transportation and Committee)

Biennial Operations Plan: A Transit plan required by Maine Law to maximize coordination of funds from all state agencies that sponsor transportation services, and to outline procedures for the development and maintenance of a permanent and effective public transportation system, with particular regard to low income elderly and handicapped residents. Updated regularly - last revised 1998 (Office of Passenger Transportation)

State Management Plan: A Transit plan is being implemented that is required by the FTA exploring current service and determining need to assure improved mobility for elderly, low income and disabled persons in rural and small urban areas of Maine. (Office of Passenger Transportation)

Maine Turnpike Authority Ten Year Plan: A plan required of the Maine Turnpike Authority by the Sensible Transportation Policy Act. The MTA plan shall include an inventory of transportation systems, forecasts of travel demand for the system under MTA jurisdiction, functional standards for transportation systems under MTA jurisdiction, identification of nature and extent of current and future deficiencies and needs of system under MTA jurisdiction and MTA's recommendations for transportation improvement strategies, project priorities and multimodal projects and programs within its jurisdiction that should be considered by MDOT in preparing and approving the Statewide plan. (Updated regularly - last updated 1998 - Maine Turnpike Authority).

Comments and Responses

MDOT’s public input process for the 2000 - 2020 *20 Year Plan* began in December 2000, where Draft Copies were made available to the general public. The comments received were compiled and appropriate responses were developed. The charts below summarize these comments. Comments included in this summary include only those that necessitated clarification or modification of the draft. For the most part, positive comments, as well as typographical, formatting, grammatical errors, though truly appreciated, are not reflected here so to assure as concise a summary as possible. Please note that modifications to the document may have affected pagination; therefore, responses may not always occur on the cited page from first Draft.

Commenter	Comments	Disposition of Comments
Multimodal Comments		